Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

BETTER FRUIT

VOLUME XIII JUNE, 1919 NUMBER 12

Barnett C R
Dept of Agric Comp
bldg.

A SPLENDIDLY DEVELOPED CLUSTER OF NORTHWEST CHERRIES

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, PORTLAND, OREGON

Subscription $1.00 per Year in the United States; Canada $1.25; Foreign, Including Postage, $1.50. Single Copy 20 Cents

International Motor Trucks
For Country Road Hauling

OF ALL the motor trucks offered for farmers' use, the **International** should be, and we believe is, the most satisfactory.

This Company knows the country—roads, farms, and all. Farmers know our standards of quality and service. When we offer a motor truck for farmers' use, it is understood that the truck will do the work expected of it at a cost farmers can afford.

The **International Motor Truck** is built for carrying capacity loads on country roads. It gives satisfactory everyday service, the kind that farmers must have. When an emergency comes—a tough piece of road, a steep hill, a rush trip, a bad day—the **International** has the reserve power, speed, and endurance to carry it through.

Mr. L. C. Henry of Utica, Minn., purchased an International Motor Truck to haul his live stock and farm produce to market and to bring return loads from town. He says, "We use the truck for nearly every kind of hauling. It saves more time than any other machine in our farm service." Five of Mr. Henry's neighbors bought International Motor Trucks when they learned, from his experience, what a useful economical farm machine he had.

There are four sizes of **International Motor Trucks**—1,500, 2,000, 3,000 and 4,000 pounds capacity, with bodies suitable for every kind of hauling. We have a dealer, a branch house, or a service station somewhere near you, where the line can be seen, or we will send full information promptly if you will write us.

The Full Line of International Harvester Quality Machines

Grain Harvesting Machines
Binders, Push Binders, Headers, Rice Binders, Harvester-Threshers, Reapers, Shockers, Threshers

Tillage Implements
Disk Harrows, Cultivators, Tractor Harrows, Spring-Tooth Harrows, Peg-Tooth Harrows, Orchard Harrows

Planting & Seeding Machines
Corn Planters, Corn Drills, Grain Drills, Broadcast Seeders, Alfalfa & Grass Seed Drills, Fertilizer & Lime Sowers

Haying Machines
Mowers, Tedders, Side Delivery Rakes, Loaders (All Types), Rakes, Combination Side Rakes and Tedders, Sweep Rakes, Stackers, Combination Sweep Rakes and Stackers, Baling Presses, Bunchers

Belt Machines
Ensilage Cutters, Huskers and Shredders, Corn Shellers, Threshers, Hay Presses, Stone Burr Mills

Belt Machines—Cont.
Cream Separators, Feed Grinders

Power Machines
Kerosene Engines, Gasoline Engines, Kerosene Tractors, Motor Trucks, Motor Cultivators

Corn Machines
Planters, Drills, Cultivators, Motor Cultivators, Binders, Pickers, Ensilage Cutters, Shellers, Huskers and Shredders

Dairy Equipment
Cream Separators (Hand), Cream Separators (Belted), Kerosene Engines, Gasoline Engines, Motor Trucks

Other Farm Equipment
Manure Spreaders, Straw Spreading Attach., Farm Wagons, Farm Trucks, Stalk Cutters, Knife Grinders, Tractor Hitches, Binder Twine

International Harvester Company of America
(Incorporated)
CHICAGO U S A

BETTER FRUIT

STATE ASSOCIATE EDITORS
OREGON—C. I. Lewis, Horticulturist, Corvallis.
WASHINGTON — Dr. A. L. Melander, Entomologist; O. M. Morris, Horticulturist; W. S. Thornber, Horticulturist, Pullman.
COLORADO—C. P. Gillette, Director and Entomologist; E. B. House, Chief of Department of Civil and Irrigation Engineering, State Agricultural College, Fort Collins.
ARIZONA—E. P. Taylor, Horticulturist, Tucson.
WISCONSIN—Dr. E. D. Ball, Director and Entomologist, Madison.
MONTANA—O. B. Whipple, Horticulturist, Bozeman.
CALIFORNIA—C. W. Woodworth, Entomologist, Berkeley; W. H. Volck, Entomologist, Watsonville; Leon D. Batchelor, Horticulturist, Riverside.
INDIANA—H. S. Jackson, Pathologist, Lafayette.

An Illustrated Magazine Devoted to the Interests of Modern, Progressive Fruit Growing and Marketing.

PUBLISHED MONTHLY BY

Better Fruit Publishing Company

703 Oregonian Building

PORTLAND, OREGON

All Communications should be addressed and Remittances made payable to

BETTER FRUIT PUBLISHING COMPANY

SUBSCRIPTION PRICE:

In the United States, $1.00 per year in advance. Canada $1.25; Foreign, including postage, $1.50.

ADVERTISING RATES ON APPLICATION

Entered as second-class matter April 22, 1918, at the Postoffice at Portland, Oregon, under the Act of Congress of March 3, 1879.

VOLUME XIII — PORTLAND, OREGON, JUNE 1, 1919 — NUMBER 12

Picking and Packing the Cherry for the Big Markets

PROBABLY no fruit that is grown requires more careful handling in picking and packing than the cherry. Being extremely delicate to the touch, it is easily bruised or the skin punctured. When this occurs decay quickly sets in and the package that has injured fruit in it is naturally difficult to market.

Picking.

While packing is the most important feature in preparing cherries for market the picking of this fruit should be given very careful attention also. In regard to picking cherries a successful grower gives this terse advice:

Do not imagine that anyone who can pick hops or strawberries can pick cherries. Select your pickers, if possible. You want hands that will use care in handling the fruit, that it be not bruised or pulled off the stem; that will not break off the easily-broken fruit spurs, and that can run up and down a ladder all day or stand on limbs without injuring them. If possible, pick your fruit in the morning, while still cool. If picked after it has warmed up, remove to a cool room for packing and run in cold storage before shipping, especially for long distance shipments. Pick into buckets and empty into shallow trays for packing, so packers will not have to handle them over and bruise them. Have pickers avoid touching the fruit as much as possible, but pick by the stem. The stem must not be cut too short.

Packing.

In packing cherries there are several styles of packages that are used. For the small package of less than eight pounds the paper carton meets the requirements best and makes a very attractive package. When received by the grower the cartons are flat and are packed one thousand in a crate.

When removed from the crate they should be laid on the table in front of the packer, printed side down, for folding. The cartons are creased at all the folds, and with proper care can be easily and rapidly placed in shape to receive the fruit. After being properly folded the cartons are placed in a wooden box that holds eight of these packages and are packed in the manner shown in Figure 1. Care should be taken in placing each carton in the box, as they do not always fold square, but are designed to fit in the wooden carrier that way.

FIGURE 1—Showing a completed package and the method of placing the cartons in the box.

An extraordinarily well developed yield of cherries.

Cherries that are packed in cartons arrive at their destination in excellent condition. There is also the advantage of being able to remove a carton if the fruit becomes bruised in transit and replacing it with a second one and thus avoiding the necessity for selling the whole box at a cut price.

The larger cherry packages are packed in eight, ten and thirty-pound

wooden boxes, as shown in Figure 2, and the twenty-pound box is also used quite extensively. Growers who have had a wide experience in shipping cherries, however, recommend the eight and ten-pound box for long-distance shipments. It has been found that the New York and other Eastern trade prefer these smaller box packages, and that the fruit arrives in much better condition than when shipped in the larger twenty and thirty-pound boxes. For the trade in Pacific Coast cities the larger boxes are more popular.

The ten-pound box, now more generally used in shipping cherries than the others, has a partition in the center of it and is more expensive on that account, requiring more lumber and more labor in the making, but so far has been found to be the best carrier with the exception of the extra fancy carton packed box. Figure 3 shows the carton packed box in contrast with the straight ten-pound-box package.

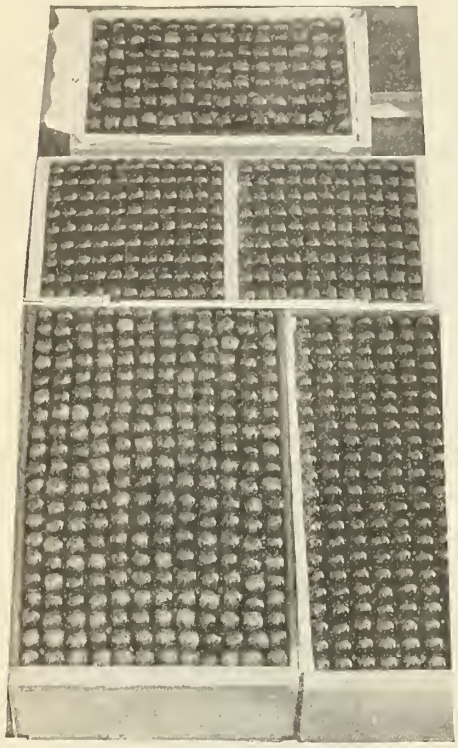


FIGURE 2—Eight, ten and thirty-pound fancy packed boxes of cherries.

FIGURE 3—Showing the contrast in appearance between a ten-pound box of cherries, straight pack, and a carton packed box.

Growing and Pruning the Sweet Cherry Tree

By Prof. O. M. Morris, Horticulturist, State College of Washington

THE sweet cherry tree is usually set when one year old, although two-year-old trees are frequently used. At the time of setting they are trimmed to straight whips and headed about two feet high. After the first season's growth in the orchard the branches that are to form the framework of the tree are selected and all others are removed. If the selected branches are long and slender they should be cut back enough to make them stocky. The system of handling the sweet cherry tree up to the beginning of fruit production should be about the same as that ordinarily given young pear trees. The long, slender branches should be headed back some each year, but it is not wise to undertake to compel the tree to grow a low top by constant heading, since heavy pruning stimulates the production of new shoots that are as vigorous as those cut back. The growth may be checked, more satisfactorily checked, by growing other crops on the ground than by use of the pruning shears.

The fruit of the sweet cherry is borne on wood of the previous season's growth, on the spurs and on the twigs. The spurs are usually short and make only an inch or so of growth each year; but they must receive nourishment from the tree, and sufficient sunlight to make them thrifty and vigorous if they are to produce fruit more than one or two years.

The tree, even in full-crop production, does not cease its tendency to grow tall. It must be held in check constantly by cutting back to the side branches the strong limbs that extend beyond the height desired. The tree, in its natural form, is tall; consequently it is difficult to make it grow a low, broad top like the peach or prune; but the extreme height can be avoided by judicious pruning. Although the sweet cherry responds well to careful pruning and the removal of surplus wood, this is usually neglected because the tree will continue to bear a crop of fruit when no pruning is given.

In many localities, several varieties of the sweet cherry have shown a strong tendency to be self-sterile; and the most popular varieties—the Bing, the Lambert and the Napoleon (Royal Ann)—are inter-sterile also. Crop production is maintained in these cases by planting inter-fertile varieties for pollenizers. The varieties most frequently used are the Waterhouse and the Black Republican. In small planting like the home orchard, pollination will be satisfactorily accomplished if one or two limbs of the trees are top-worked to the pollinating variety.

Cherry trees, like other stone-fruit trees, are not easily top-grafted by the common methods. One of the most successful methods is budding. The ordinary shield bud is used. This can best be done while the tree is young. Buds of the desired variety should be set on a one or a two-year-old branch of the tree.

Season of Pruning.

In most sections of this state, the annual winter pruning can be done at any time during the late fall, winter or early spring without any injurious results following. If the wood is not frozen at the time the pruning is done, the tree responds in the same manner whether the pruning is done in the fall, in midwinter or in early spring. Winter pruning of peaches may often be wisely delayed until it can be ascertained whether or not the crop of buds has been winter-killed. Summer pruning can be done with profit, sometimes, where it is used to modify the shape of the tree without changing the activities of growth that are taking place. And sometimes it can be used to induce fruit production. But it must be remembered that this is only one of the forces to which the tree responds; that climate, weather, soil moisture, plant food supply, and the general condition of the tree are influential factors, and that the exact influence which each of these may exert on the life of the tree at any one time is not easily determined.

Healing of Wounds.

Wounds do not heal as easily on stone-fruit trees as on apple and pear trees. Large wounds frequently cause trouble, since they afford a place of entrance for the rot fungi. The decay which follows soon extends down into the heart wood and weakens the tree. This trouble can be prevented by using

antiseptic dressings on the wounds. Corrosive sublimate, used at the strength of one part of corrosive sublimate (Bichloride of Mercury) to one thousand parts of water, is as good as any material that can be used. Painting with thick white lead paint also gives good results. Thin paints usually result in injury by killing back the tissue around the edge of the wound.

Broken Trees.

Every possible precaution should be exercised to prevent the stone-fruit trees being broken or split by an overload of fruit or by storms. Badly split or broken branches can seldom be brought back into place and so secured that growth and fruit production will continue satisfactorily. Badly broken branches can often be cut back, as in dehorning. These quickly renew their part of the top with watersprouts, which will soon become normal fruiting wood.

The only form of support that is used with success is the individual prop for each large limb. Proper thinning will reduce to a minimum the number of props that are necessary and usually enables the tree to carry its load unaided.

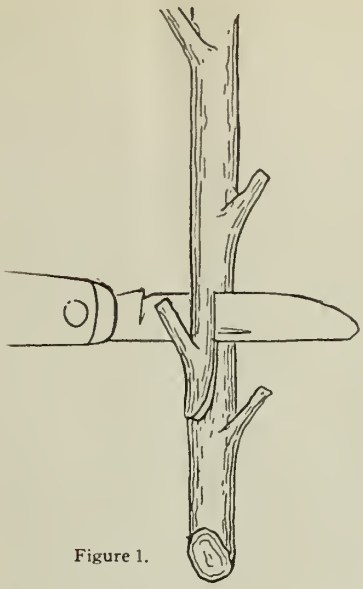


Figure 1.

Bleeding Wounds.

The accumulation of gum on the trunk and large branches is the result of bleeding, which is usually caused by mechanical injuries, breaking the bark, winter injury, insects or disease; or by a combination of two or more of these conditions existing at the same time. The most common treatment is to remove the cause of trouble and cut back the injured area to sound wood and bark and disinfect the wound.

Top Working.

The buds are cut, usually after midsummer, from well-matured twigs, not more than one-fourth inch in diameter and twigs measuring three-sixteenths of an inch are better. If the leaves are still attached the blade should be cut off as soon as the twig is cut. The leaf stem serves as a handle for the bud during the operation of setting it. The buds are cut by placing the edge of the

Continued on page 11.

Large Cut in Pruning the Cherry Tree

By Elihu Bowles, Prosser, Washington

IT has been about ten years since I began making cuts in cherry trees larger than could be made with the pruning shears, but not until three or four years ago did I do more than experiment on half-dead trees. Now I make it a very prominent feature of the pruning work. I am, however, still observing effects, good and bad, and am ready at any time to abandon the practice when results demand it. It may be wise to consider it yet in the experimental stage, but so far the results are very satisfactory.

Figure 1—Showing how tall, upright branch in center of tree in cherry orchard of M. E. Bowles at Prosser, Washington, was removed without injuring the life of the tree.

A few weeks ago I had a telephone call from a man wanting to know how to prune his cherry trees, which had grown too tall to be profitable. A part of the conversation ran like this:

"Do you cut the big limbs?

"Yes; cut what you don't want.

"Three or four inches?

"Yes; six or eight.

"Six or eight?

"Yes; six or eight.

"Well, how old are your trees?

"Fourteen."

The receiver shortly banged. It seemed that the man had decided he had no time to waste with a member of the Ananias Club—one who could cut a six or eight-inch limb from a fourteen-year-old tree. Well, I felt like George Washington, but was a little curious to know if my estimate was high; as I had never made a measurement. I afterwards measured a few cuts of these diameters in inches: 7.8, 7.5, 7.6, 7.2, 7.

Figure 2—Thirteen-year-old cherry tree in Mr. Bowles' orchard on which two very heavy cuts were made to remove superfluous wood and eliminate the "starved center."

About nine years ago I cut down a tree I thought was entirely dead. The next spring a shoot sprang from the stump—now it is a thrifty, well-formed

FIGURE 3—Tree in Mr. Bowles' orchard on which cut six inches in diameter was made.

tree. Another tree, I stood by with axe in hand, but before the first cut I saw signs of life and decided to leave the trunk with a few short branches, just to see what it would do. I made the largest cuts that could be made, except the trunk. It is now a fine tree with a crop that looks like a quarter of a ton.

Several of the trees became too tall for profit; but a few big cuts brought them down to normal proportions, reducing the height of the main crop five to ten feet. Some trees require two or three years to get the proper readjustment, as there is apparently little left after cutting out the branches not wanted. In extreme cases the cutting should be done only a part each year. I like to bring a tree to its proper height all at one time by three or four cuts; but no two trees can be pruned alike. There can be no definite rule to follow.

As to the best time for this logging work in the cherry orchard—well, I don't know. I do most of it after harvest, but have worked at nearly every time of year. I do it when I have time; and so far I can see practically no difference, whether it be spring or fall, summer or winter.

The accompanying cuts are from photographs taken on the 17th of August, 1918, by C. T. Kinman, a government agent, who came here to study the large-cut method of pruning cherry trees. He failed to get a view of the largest cuttings, as they were in the heavier part of the orchard where the light was insufficient for the camera.

No. 1 is only of medium size, but it shows how the tall, upright center has been removed, leaving a wide open center, which made District Horticulturist Luke Powell spread himself to the limit to find support. This tree also shows the fine condition of the foliage, which is not common with trees in late summer which are compelled to support all their large branches.

No. 2 is a larger tree, with a wide open center, but this result was secured without cutting any branch as large as most that were left. The foliage is good, but most of it is above the portion shown. This tree illustrated the "starved center" so common with the Bing, the branches which once formed the main part of the tree having been robbed by the outside branches.

No. 3 appears as a dead tree, but it is a pruning picked up from the ground and stood upright to show its size. This was a center cut six inches in diameter, and was the only cut of importance from a tree of medium size to leave a well-balanced hollow top.

It is cause for congratulation for fruit men to know that the Bureau of Markets, which has maintained such an efficient service, will be able to continue its work, notwithstanding the fact that Congress failed to make an appropriation for it at the last session.

Co-operation as Seen at the Skookum Convention

Written for Better Fruit by Special Correspondent

I HEARD one man say: "It was an education!" He might have added that this big convention was a whole Alexander Hamilton Institute Course in Co-operation. "Big work," another said. It was. As I write this I feel it was so big it is difficult to put it over in mere words. To me the one big significance of this convention of Skookum men was the proof that we lean on each other. We cannot evade it—every man jack of us has one hand anyway leaning on the shoulder of the other fellow. I would say, after listening-in for three days to the brains and enthusiasm of Northwest apple co-operators, that this "bunch" is like the wedge we used to have in the old football days—of course when the wedge is driving through, shoulder to shoulder, the other fellow can follow walking behind, but it's the wedge that does the work. You have that "other fellow" proposition of course in all walks of life, and I often think it is too bad that this is so — the hard-hitting, stern minded men of conscience and endeavor, determined on what is right regardless, go through, fight through, take the brunt of it, and then the other fellow comes along in his limousine on the alsphalt for which the other fellow has paid the price. "Let George do it!" It's an old story. Skookum don't let George do it. Skookum does it. That fact just hit me in the face every minute for three days.

Now I don't mean to say that they let George do it because of a slacker disposition. Not that at all. It is a safe bet that ninety out of a hundred of the "stay outs" are the right sort, and want to get in on the "wedge" and drive with the bunch. But they don't do it. Why? Because they haven't been at a Skookum convention—at least that is what I think. Because they haven't had this "Alexander Hamilton Institute" course of education! That is the way I look at it. Because all these other fellows that stand out and look on have not yet seen the light! They don't comprehend right down deep how we all "lean on each other," and must lean on each other.

These Skookum fellows were all in good humor over it all. They had only good words and good fellowship for the other fellow. They are respecters of other organizations, but they told living truths for the man who stood out of any and all organizations. That is, at least, how I was impressed. And I was satisfied right down deep in my own mind that the Northwest is, sooner or later, going to be bound together in one co-operative apple cause just as sure as "Sunkist" orange growers are bound together down in California.

Right at the start, when Corbaley, that stalwart of Northwest development, made his wholesome address of welcome, I said to myself: If it weren't for organizers like Corbaley, for co-operative work like Corbaley is doing, these growers who stand outside and look on would be beating the walls with their fists. So they would. "What awful conditions would confront the apple business today if there were no organizations," said Corbaley. Yes, said I to myself later when I heard Robinson talk—Robinson of the Northwestern Fruit Exchange, who fights for right rates like a mother fights for the life of a child—what would those outsiders do about it if they did not have experts representing them on rates? Why, the industry would be wiped off the map. Robinson showed what organization had done to save the industry from rates that would have crippled it. Yes! "lean on each other"—it is a positive, can't-get-away-from-it truth. Then Corbaley pictured the Golden

Continued on page 28.

Filbert Culture a New Orchard Industry in Oregon

By Earl Percy, County Agriculturist of Douglas County, Oregon

THE hazelnut is one of the very few nuts indigenous to Oregon and it is to be expected that the filbert, its city cousin, should do well commercially. It has been tested in many parts of the Northwest for years and has proven so successful under the climatic and soil conditions of the Willamette Valley and in other districts of Western Oregon and Washington that it is now an accepted branch of horticulture. Like the walnut, it holds promise of becoming one of the most thriving fields for the fruit grower.

Recently the writer unearthed an interesting fact bearing upon the future of filbert culture. A grove of filberts 43 years old has been found which without any other attention than that which Mother Nature bestows upon her children, is still alive and producing heavily.

In 1859 G. J. Callahan traded his farm in Benton County, Missouri, for the donation land claim of a Mr. White in Fleurnoy Valley in Douglas County, Oregon. This was one of those "unsight and unseen" affairs peculiar to the early pioneer days. Callanhan loaded his family and effects into a prairie schooner, traveling by way of California, reaching his new home in 1864.

David Grenot, a Frenchman living nearby, sent to France for some filbert seed of the Aveline, or thin-shelled type. When these sprouted he divided with his neighbor, Callahan. These plants, fifty in number, were set out in 1876, around the barn lot, being planted along the fence row, as is the practice in the old country. Little attention was ever given these nuts and the Callahan family was content to divide the crops with the jaybirds and the squirrels. Forty-nine of these trees are alive today, a remarkable record for longevity. for a fruit tree without care or attention. Apparently, therefore, there is no need to consider the matter of productive age when discussing filbert culture.

Filbert tree five years old, showing bush form.

Filbert tree five years old, showing tree form.

The word filbert is a corruption of the old English appellation "fullbeard" given to the cultivated hazelnut because of the long husk which protects the nuts of some varieties. Filbert culture has been an established factor in the agriculture of parts of Southern Europe for generations, namely, in the Province of Tarragon, Spain, Corsica, Sicily and Southern France. In a smaller way it is cultivated in Germany and England. Millions of pounds of filberts are imported from Europe, yet it is said that there is not a ten-acre grove to be found in all of France or Italy. Nut trees, including the walnut, are grown as a secondary crop in the countryside of Southern Europe, being planted along the fence rows and on the steep hillsides, where other crops cannot be raised.

All attempts to cultivate the filbert commercially in the eastern part of the United States have failed, but from the beginning the plantings in Western Oregon and Washington have been successful. Horticulturists know that certain fruits of Western Europe thrive in the Western part of America, but do not grow well in the East. The European grape is another example. Such varieties as are represented by the Tokay have never been produced in a commercial way along the Atlantic Coast, but on the Pacific Slope attain a perfection difficult to surpass even in Europe.

Over twenty years ago Mr. A. A. Quarnburg, the veteran fruit grower of Vancouver, began experimenting with the filbert to test its adaptability under Western conditions. He secured many varieties from various sources throughout the world, and from these extensive tests has pronounced filbert culture a success.

The frost factor does not enter into filbert culture because it blooms and pollenates in mid-winter. In fact the male catkins begin to grow during August of the previous season. The pollen is scattered in December, January and February. The filbert is bisexual, having both the male and female flower on the same bush, but separate. The female flowers are inconspicuous, appearing as tufts of crimson-purple stigmas on the tips of the fruiting buds. A prominent grower at Springfield has harvested twelve successive crops from his filbert grove, but has lost his crop of pears, cherries and grapes many times from frost under similar conditions as to frost susceptibility.

At the present time the Barcelona is the best variety for the Northwest. The DuChilly is next in commercial importance. The first named is a broad, heavy nut. The DuChilly is a long, thin-shelled variety. The Barcelona makes a large tree, as it is the heaviest feeder among the filbert family. On river-bottom soil it will grow to be as big as a peach tree. For this reason twenty feet is the minimum distance for planting this variety. The matter of pollenation is still somewhat in doubt. It is claimed that the DuChilly will fertilize the Barcelona, but that a reciprocal action does not take place. Mr. George Dorris, who is probably the

Filbert tree showing catkins, which begin to grow in August. The filbert tree pollenizes during the winter months and is bi-sexual, having both the male and female flowers on the same tree.

largest filbert grower in America, believes that the Davidiana pollenates both the Barcelona and DuChilly perfectly. To insure results a few plants of certain other varieties should be included in the nut grove.

The filbert tree is a rampant feeder, and from observations in many groves in the Northwest it yields more or less in proportion to the size or growth attained. Deep, well-drained river-bottom soil is probably the best land for the filbert. However, where moisture conditions are good—the filbert will not stand wet feet—it grows well in other types of soil. The writer knows of a small grove on the redhills in the Willamette Valley, which produced $125 worth of nuts to the acre in 1918 at seven years of age. The exact limitations so far as soil requirements are concerned is not known, yet it is known that for maximum success the filbert must have the best growing soil.

Filbert literature contains two words of an ambiguous nature. Reference is made to "tree" and "bush." Some growers assert with vehemence that the natural, and therefore the proper way, to grow the filbert is in the bush form, but the best practice seems to commend the tree form as productive of the most profitable results. The filbert is notorious for its suckering propensities and a stranger to its habits will throw up his hands in disgust after a few seasons of suckering, allowing the plant to grow at will. If the tree form is desired all sprouts should be kept down constantly, as these suckers act as a drain upon the older shoots and grow at their expense. By stripping the leaves off several times during the season the sprouts will become discouraged, but a better method is to cut them off under ground where they leave the main roots, using a chisel for the operation.

Some growers save several shoots rather than a single one to form the tree, claiming certain advantages for the system. New plants are secured by removing such suckers as have rooted after the growing season is over. If a small thread or rootlet remains attached to the shoot it will grow, but where there is no vestige of a root it will die if planted out. At present the nurseries obtain their plants from suckers not caring to risk propagation by other methods. Filberts come true from suckers from the roots, excepting, of course, when grafted on seedlings. This method is becoming popular, i. e., of grafting the desired variety on shoots raised from seeds. Seedlings do not come true. The seedling grove mentioned at the beginning of this article produces every type of nut imaginable from a thick hard-shelled type to a long thin-shelled kind. Practical growers desire that the nurseries will take up the practice of grafting filberts in order to produce more rapidly a sufficient supply to lower the cost of plants.

It costs more to plant a filbert grove, acre for acre, than any other kind of fruit, because at twenty feet, 108 are required to the acre. The price varies from 20 to 50 cents apiece. At present, however, the returns justify the expenditure. Under good care an acre of filberts should yield 1,000 pounds at seven years of age and at ten years over 2,000 pounds. Instances of 18 pounds of nuts from a five-year tree are common enough to warrant confidence in the early productivity of filberts. Mr. George Dorris believes that 4,000 pounds to the acre at twelve years is to be expected on river-bottom soil.

The filbert fits in well with the small home orchard and should have a place alongside of the walnut, grape and cherry in every well selected family orchard.

The Northwest Apple-Growing Industry and Its Future

By H. F. Davidson, Hood River, Oregon

AFTER canvassing the apple outlook situation for the coming season in the Pacific Northwest subsequent to my returning to the Coast from a very busy season in New York, I am inclined to the opinion that the prospects are excellent and that growers have every reason to be optimistic. For several years the average apple grower in the Northwest has operated at a loss, or at best at an unsatisfactory profit, but the indications now are that he will realize a satisfactory return for his efforts and patience during the lean years, and that Northwest apple orchards in the future will be a big asset in the commercial life of this big section of the United States that I consider the finest, from every point of view, that lies in Uncle Sam's domain.

Reviewing the success of the past season for the grower, there were several features that very materially helped the marketing of the 1918 crop, notwithstanding the fact that until late in the season foreign markets were practically closed to American apples. Unable to foresee the unexpected culmination of the war, growers disposed of their apple crops last year at better early prices than usual, but in most instances did not reap the benefit of the heavy advance in prices which took place later and which went to the dealers.

For the first time in the history of the Northwest apple industry, buying was heavy from the interior points in the United States. Orders were received from many sections of the country that had never before bought in carload lots, and instead of the fruit moving to centers of distribution, like Chicago and Omaha, to be shipped out again at heavy cost, buyers placed their orders with the shippers at producing points. In this way a larger proportion of the 1918 crop went direct to the small consuming markets than ever before.

H. F. DAVIDSON
OF HOOD RIVER

Formerly president of the North Pacific Fruit Distributors. Mr. Davidson is now at the head of a company that owns 200 acres of bearing orchard at Hood River and also maintains a New York office where he engages in the marketing of Northwest apples during the shipping season. Mr. Davidson came to Oregon when the fruit industry of the Northwest was in its infancy. At various times he has been identified with organizations that have handled all kinds of fruits, and built the first cold storage warehouse in the Hood River Valley. He was also instrumental in securing the first irrigation system for this now famous apple raising district.

Another feature which was of great assistance in distributing the past season's crop successfully was the fact that the supply of refrigerator cars, being under government operation, was much more efficient, although the movement of cars was heavier during the shipping period. A continued strong demand from home markets, with rapid shipping facilities, kept the movement of the crop from becoming congested before the export demand started. When the latter opened, prices immediately advanced and kept advancing until the close of the season. The fact that dealers found it necessary to pay $1 a box and more for their supplies of apples in January than would have been the case if they had bought in October or November of last year, indicates that they will be inclined to buy earlier this year. This fact should greatly stimulate buying at harvest time and before and create a market in the growers' favor. The concentration of large acreages in strong hands, which is now being reported to be taking place in several of the Northwest districts, should also help to stabilize the market this year.

Taking up the question of apple growing from the grower's point of view—that is, the point of view of producing to secure a just and fair return—I firmly believe that the orchard industry of the Northwest has passed the experimental stage, and that from now on the careful and progressive

grower should be highly successful. Since 1911, apple orchards in this section have been in the stage of being developed at a high cost, while the average production per acre has been low, as the trees were too young to bear full yields. This naturally resulted in a high cost per box. It cost just as much to care for an orchard that produced 100 boxes of apples to the acre as it did to care for one that produced 500 boxes, except in the harvesting; in addition to the fact that the same amount of money was invested. There has been the drawback also that it has taken a number of years to determine the methods to be used in all phases of orcharding to secure the best results. In trying to solve these problems, which included not only growing, but packing, shipping and selling, many thousands of dollars were spent by the grower that should be saved in the future. Methods for growing fruit successfully are now on a fixed basis, while marketing is no longer a matter of guess work from year to year. The various marketing channels that have been opened to the grower give him the option of selling his fruit by various methods. He now knows just what he must do to produce the best fruit at the least cost; just what and how to pack. He has become familiar with what the trade will take and has discovered that it doesn't pay to attempt to throw on the big markets of the East stock that is not up to grade.

In my observations in the apple-growing districts of the Northwest, I find that orchardmen are becoming more and more a unit in using the most progressive and up-to-date methods. They are watching everything connected with the apple-growing industry closely and where any feature can be added that will tend to make the orchard pay better they are not slow in taking it up. An example of this can be found in growing alfalfa in orchards. In the early stages of fruit raising it was considered almost a crime to grow anything in an orchard but trees. It is now found that where there is irrigation, alfalfa grown between the trees is not only profitable but highly beneficial in restoring nitrogen and humus to the soil.

It is these things combined with the lesson that experience has taught the Northwest orchardist, as well as the buyer and shipper of Northwest fruit, that forecast a greater success for the industry in future.

The Field Testing of Copper-Spray Coatings on Foliage

By J. R. Winston, Assistant Pathologist, and H. R. Fulton, Pathologist, Office of Fruit-Disease Investigations

GENERAL experience in the use of copper-containing spray mixtures indicates a progressive decrease in the fungicidal effectiveness of the spray coatings which is to a large extent proportional to the relative amounts of spray residue present. A direct decrease in effectiveness is brought about by weathering factors, such as washing by rain or dew, mechanical abrasion by wind, and slow chemical change in the exposed spray coating. An indirect decrease in effectiveness may result from the growth extension of plant parts, either through enlargement of organs already sprayed or through the development of new organs subsequent to the spray application. In practice the interval between spray applications depends on the rates of both weathering and growth extension. The second can be judged by careful observation. In so far as the first is concerned, observations are often misleading. Present-day spray calendars are based only in a general way on the average practical and experimental experience of past years. In any particular season or section or planting the actual requirements for adequate protection may vary widely from such average, necessitating greater or less frequency of application than the standard spray calendar provides. It is difficult to estimate the effects of the complicated set of local factors that determine the effective period of any spray application. A suitable chemical test of the spray coating would seem to be a desirable aid in forming judgment as to the proper time for renewal. Such test should be simple, rapid and reasonably accurate. The more refined methods of chemical analysis, while very exact, would not well serve the practical purpose, because of the special requirements in professional training, apparatus and time.

A Practical Method of Field Testing

The following method has been used during two seasons and has been found to be reasonably satisfactory in field practice. This is indicated by the consistent results obtained with varying strengths of copper sprays, many of which have been checked by exact chemical analyses of duplicate samples.

A 200-gram fresh weight sample of leaves is washed at least three minutes, with occasional stirring, in 1,000 c. c. of a 0.2 per cent solution of chemically pure nitric acid in water, either distilled or sufficiently pure to give correct results. A convenient amount of this acidulated wash water is treated with a few drops of 2 per cent solution of potassium-ferrocyanide solution, sufficient to precipitate the copper. A color comparison is then made with a series of known dilutions of a standard copper solution, similarly treated with the potassium-ferrocyanide solution. From this comparison the copper content of the wash water is determined. For more exact readings a colorimeter may be used.

The standard copper solution is made by dissolving 3.928 grams of pure crystals of copper sulphate in water to make 1,000 c. c. Each cubic centimeter of such standard solution would then contain 1 milligram of copper, and by proper dilution with water stock solutions may be readily prepared for the comparison series containing one-half to 10 mg. of copper per 100 c. c. of water, in one-half or 1 mg. grades. If the wash water gives readings above 8 or 10 mg. of copper per 100 c. c. it should be diluted for accurate color comparison and account of this taken in figuring results. On the basis indicated above, any direct reading multiplied by 5 will express the amount of copper in the spray residue in milligrams per 100 grams fresh weight of leaves, a convenient unit for tabulation purposes. The solutions of potassium ferrocyanide and of nitric acid may be varied in strength for considerable differences in the copper content of the spray coating, so as to avoid using unnecessarily strong solutions, with consequent reduction in the delicacy of the test. There must always be a sufficient amount of nitric acid to dissolve completely the copper compounds and of potassium ferrocyanide to precipitate them completely.

Due care must be taken to make the leaf samples representative. About three samples of 200 grams each should be taken at various parts of a sprayed planting. Under ordinary conditions collections every three or four days will give a satisfactory indication of the persistence of the spray residue. If in the case of any variety of leaf there is a tendency toward discoloration of the wash water from dissolution of organic compounds in such a way as to interfere seriously with the color comparisons, one may titrate a measured quantity of the wash water with a solution of potassium ferrocyanide previously standardized against a copper solution of known strength, using a weak ferric-chlorid solution as the end-point indicator, in small drops on a white porcelain plate. Tests on many kinds of crop plants indicate that this titration method will be seldom needed. Permitting the weighed leaves to dry or to "heat" may interfere with accurate testing.

The coating on the foliage will usually prove to be a fair index to the thoroughness of application to other parts. For convenience, the samples are based on weight, but the spray coating is proportional to area. The different ratios between these, due to difference in species or age of leaves, when considerable, should be given due weight in making comparisons. Obviously, it is possible to secure as high tests from strong sprays unevenly applied as from moderate strengths more evenly and effectively used, but it is believed that the histories of such cases will guard against incorrect interpretations.

The amount of spray residue necessary for adequate protection against any specific disease would doubtless vary with a complex set of factors. There would thus exist a critical transition zone with maximum and minimum limits above which protection would be secured and below which protection would be insufficient. These limits can

Continued on page 34.

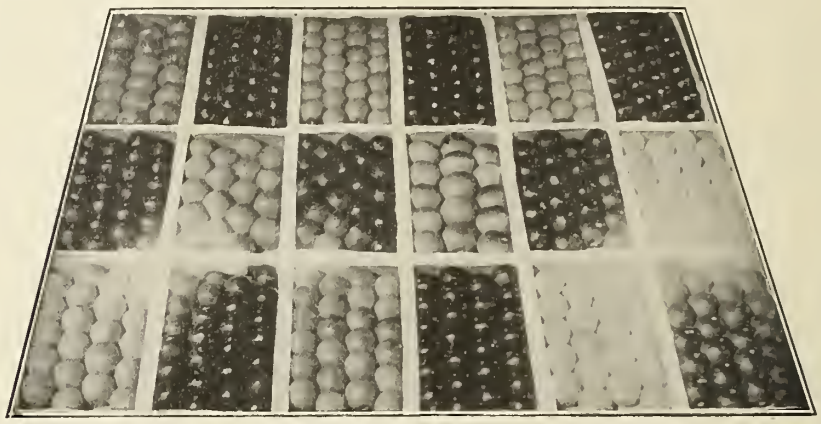
The Importance of Thinning Fruit and How to Do It

By W. H. Walton, Editor of Better Fruit

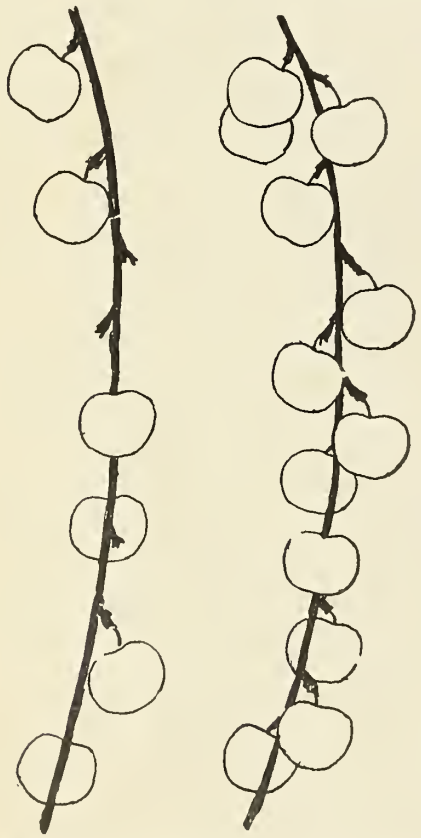
THE prospects for high prices for apples this year and the fact that labor is costly will no doubt cause many a grower to ask himself this question: Will it pay to thin? If the grower who asks himself that question is wise, he must conclude that it does. There is no weight to the argument that thinning is costly, for, as has been pointed out frequently by authorities on the cost of orcharding, there is just so much fruit to be picked and it costs no more to pick it at thinning time than it does when harvesting time comes. The grower must also remember that more boxes of inferior fruit do not mean any more to him in the way of income than a less number of boxes of first-class quality. In fact, taking into consideration the expense of packing and handling, it is an assured fact that the grower who doesn't thin is very much out of pocket even in the years when prices for fruit rule extremely high.

Why You Should Thin.

Apart from this view of the question of thinning, there are other reasons why the careful and progressive fruit producer should always thin his fruit unless it so happens that nature has done it for him. One of the most important of these is that he should look to the future well being of his trees. It is a well-known fact that the practice of allowing fruit trees to overbear is more conducive in bringing on the alternate-crop year than any other cause. Thinning is also very important in maintaining the vigor of the trees from year to year as well as making it possible to produce fruit of maximum size, color and quality. All these reasons are very important factors to an orchard, for when the trees become weakened in any manner they will not be able to so successfully resist insect pests and tree diseases. Therefore, the practice of thinning annually and uniformly has much to do with preserving tree vitality.



One of the best final results of thinning. An easily graded, more economical and uniform pack.



On the right is a branch of unthinned fruit, showing the apples touching each other and too close together. The branch on the left shows the results of thinning, and the fruit more nearly in the position it should be to obtain the best results.

The lessened percentage of wormy apples at harvest time, due to picking and destroying the young infested fruit at the proper time is another good argument for the time and expense spent in thinning.

A table of figures prepared by R. S. Herrick, a successful orchardist, to determine the actual value of thinning several years ago, and published in the Encyclodedia of Practical Horticulture, shows the following remarkable results per tree:

	Extra Fancy at $1.75 per Box		*Fancy at $1.50 per Box*		*"C" Grade at 85c per Box*		*Culls at 75c per Box*		*Cost of Thinning*
Thinned	5.34	$9.35	3.07	$4.51	3.2	$2.72	1.11	$0.19	$0.64
Not thinned	2.5	4.38	1	1.50	9	7.65	5.08	.89	....
Thinned	Gain	$4.97	Gain	$3.11	Loss	$4.93	Loss	$0.70	$0.64

Total gain per tree, $8.08; total loss per tree, $6.27; net gain per tree $1.81.

While the labor cost per tree will probably be somewhat higher this year, there should still be left a substantial margin of profit in favor of thinning.

How to Thin.

In thinning apples in the Northwest, the work should usually commence the latter part of June or the first of July. The defective and wormy specimens should first be removed. These should be raked up and destroyed. The thinner should next relieve the bunching conditions, as a rule not leaving more than one apple on a fruit spur. Those on the tips of the branches are also usually removed, as they are not apt to develop into first-class fruit. When properly thinned the apples should be about seven inches apart, although it is customary to leave some of the smaller sized varieties closer and some of the larger growing kinds farther apart.

The thinner should study his trees individually and thin so that at picking time the trees will hold up well under a uniform load of well-sized apples. It takes close observation and experience to get the best results from thinning and care should be taken in selecting hands to do the work. The best results in thinning the larger varieties like the Winesap and Spitzenberg can be obtained when the apples are thinned to a distance of eight or nine inches. The plan adopted by the most careful orchardist is to commence at the top of the tree and work down, and if there is any difference to be made in the distance to thin the apples, those nearer the trunk of the tree should be left farther apart on account of there being more shade in this part of the tree. Shade is necessary, as it prevents sunscald, but it is possible to have too much to allow the fruit to properly color.

In removing the apples to be thinned all those that are wormy and much smaller than the average should be thinned out as well as those that are limb-bruised or have other defects. Also those that are liable to become defective as they grow in size should be removed. The apples should be left so they do not touch each other and in such a position that they can have the best opportunity to attain size and color and to be as free of blemish as possible. Thinning should be done with a good pair of thinning shears, of which there are several types now on the market.

A more pronounced form of thinning where trees are too close together and are crowding each other is to take out every other tree in the row. This is a very radical form of thinning, however, and will not apply except in some of the older orchards where insufficient dis-

tance was left between the trees when they were planted.

While the demand for several years has not been for such large fruit as in former years the trade still wants fruit of good average size, and, while the orchardist may decide to modify his thinning to some extent on this account, the many other reasons why fruit should be thinned, particularly the apple, are just as important as ever, whether the price be high or low. Thinning means to the orchardist more high quality fruit, bringing with it a better price, more vigorous trees, the greater likelihood of a good annual yield and a longer lived and better all-around orchard.

Pollenization Important in Cherry Growing

By M. H. Harlow, Eugene, Oregon

Cherry orchard in bloom.

IN growing cherries I consider pollenization one of the most important factors. In my young cherry orchard I have put pollenizers of the Waterhouse variety in, one in four; that is, a Waterhouse every other tree in every other row. This proportion, I think, is about right to secure the best results in pollenization. If I were going to set either Royal Anns, Bings or Lamberts I would set them the same way and plant the trees forty feet apart each way.

I attribute my success in cherry growing to the fact that my trees were set on deep soil that was well drained. Since they have been in full bearing I have given them several dressings of manure. While there are other features that must be observed in order to grow cherries successfully the two I have mentioned are of the greatest importance to the inexperienced grower.

Prof. Thornber to Retire from Extension Service

The announcement is made that Professor W. S. Thornber, director of extension service at the Washington State College at Pullman, will retire from that position July 1. The announcement of the retirement of Mr. Thornber comes as a surprise to his many friends in horticultural and fruit-growing circles throughout the Northwest, who look upon him as one of the most valuable men engaged in extension service work and who had no intimation of his decision to give up the position in which he has made such an enviable record.

It is stated that Professor Thornber will resign in order to give his whole attention to the work of consulting horticulturist in the Pacific Northwest and also to devote more of his time to his own horticultural interests, which are situated in the Lewiston Valley.

PROF. W. S. THORNBER
Who will retire as director of the extension service of the Washington State College at Pullman to devote his time to the work of a consulting horticulturist in the Pacific Northwest and his own horticultural interests.

It is stated also that Professor Thornber may be induced to give part of his time during the winter months to lecturing before the winter short courses which are held annually at the Washington State College.

During his connection with the college Professor Thornber has extended many courtesies to BETTER FRUIT in the way of articles and expert knowledge on horticultural subjects that have been a great help to the fruit growers of the Northwest, and while this magazine regrets to see the college lose his expert services, it at the same time wishes him unqualified success in his new field of endeavor.

Growing and Prunning the Sweet Cherry Tree

Continued from page 5.

knife about one-half inch below the attached leaf stem and drawn under the bud, as in Fig. 1. Enough wood should be lifted with this cut to give the bud and bark a firm, stiff body, so that it can be pushed under the bark of the stock,

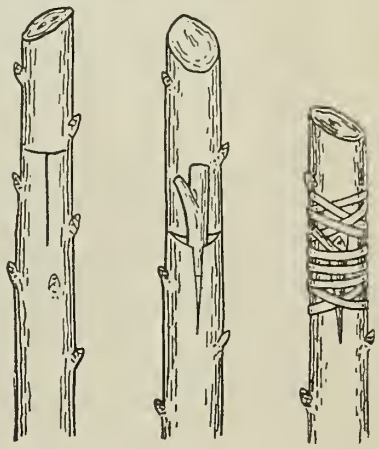


Figure 2 Figure 3 Figure 4

as in Fig. 3. The last cut that separates the bud from the parent bud stick should be made about one-half inch above the bud, or even with the edge of the knife, as shown in Fig. 1. The stock, which should be growing rapidly, so the bark will slip easily, is prepared to receive the bud by a longitudinal split about one and one-half inches long, with a cross cut at the top, as shown in Fig. 2. The point of the bud is then inserted under the corner of the bark and pushed as far down as the split will let it go. It is then wrapped, as shown in Fig. 4, and left in that condition for eight or ten days. At the end of this time the binding should be cut away, and if the bud is not green and attached to the wood another should be set in a new position. The branch should be cut away just above this bud the following spring.

For Sale or Trade

320 level acres, foothills, Southern California. No alkali or hardpan. Fruit and stock location, gravity water and good well, usual improvements, house and barn, etc. Ideal climate, elevation 3,000 feet. $30.00 per acre. Write owner,

Box 211, Victorville, California

Oregon Berry Crop 86,000,000 Pounds

The rapid strides that the berry industry is making in Oregon will soon place it on an equal basis as an income producer with prunes and apples. According to a recent compilation of figures 86,000,000 pounds of berries were produced in Oregon last year. Loganberries lead with 41,000,000 pounds, blackberries came next with 26,000,000 pounds and other berries were produced as follows: Strawberries, 7,000,000; raspberries, 6,000,000; gooseberries, 4,000,000; and currants, 2,118,000. The valuation placed on the total berry production in the state was $5,960,000. As the value of the 1918 apple crop is placed at $6,100,000, the value of the berry crop almost equaled that of Oregon's leading fruit industry. The value of the berry of 1918 exceeded the value of the Oregon prune crop by nearly $2,000,000, the prune industry realizing some $4,100,000 for the 1918 crop.

It is anticipated that the quantity of berries produced in the Willamette Valley in 1919 will break all previous records, and it is within the bounds of possibility that the 1919 production will more than double that of 1918, in itself a record crop.

Frost Damages Northwest Fruit

While some damage has been done in the Pacific Northwest to fruit by frost crop conditions at this time throughout this section are reported as good. In the Yakima Valley apples and prunes suffered some damage. Winesaps in the lower Yakima Valley were hit to some extent, but the loss is not regarded as very serious. The prune crop in this district sustained the most damage.

The heaviest damage by frost in the Northwest is reported from the Boise and Payette Valleys in Idaho. In both the latter districts prunes, cherries and apples were hard hit by low temperatures. In the Payette Valley the freeze is reported to have been particularly hard and the fruit crop to have been almost destroyed.

In Oregon, conditions are reported as very favorable, frost having done little if any damage. The weather in that state has been very favorable to pollenization and all tree fruits set heavily. Some dropping of early fruits is reported from a few counties.

In California, fruit has been slightly damaged by insect pests, such as caterpillars and red spiders. In Nevada the fruit crop is reported to be in good condition.

$15.00 a Barrel for Apples.

Kansas City, during the past month, reported the highest price ever received for barrel apples in that section. A number of carlots were sold there at $15.00 per barrel. The variety of apples sold were Willow Twigs, which, although grown to some extent in the Northwest, are not raised in sufficient quantity to be of any commercial importance.

Strawberry Growers Attention!

We will take contracts for entire output of Strawberry Patches. Write or phone before contracting for the season.

Henry Weinhard Plant

Manufacturers of Weinhard Quality Beverages

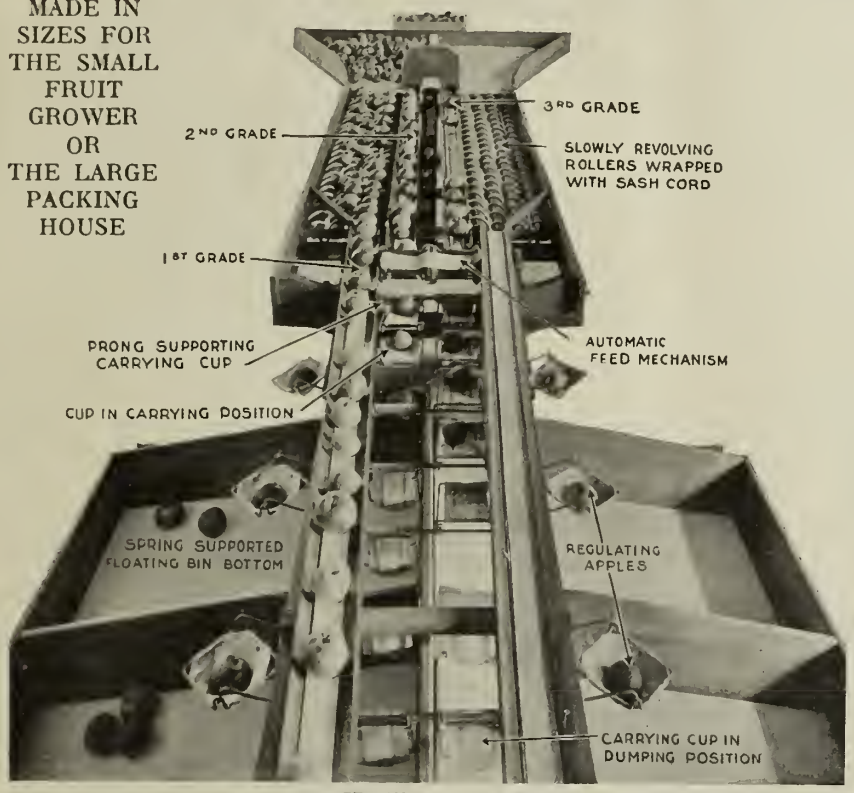
PORTLAND, OREGON

The New Cutler Mechanical Sorting Table

Saves 25% to 50% in

Cost of Sorting Fruit and Vegetables

MADE IN SIZES FOR THE SMALL FRUIT GROWER OR THE LARGE PACKING HOUSE



EXPLANATION OF PRINCIPLE

The endless carrier is composed of a series of cross rods carried forward by the two side chains and from these cross rods canvas bottom "carrying cups" are swung. An opening is provided in the side rails over each of the bins below, but these openings are bridged across by the inner bars of simple balancing scales, provided at their opposite ends with canvas pockets into which the regulating apples are placed. These regulating apples determine the size of the fruit which is delivered to the bins below, and all that is necessary to set the machine for delivery is to place a regulating apple of the same size as desired in the first bin, in the canvas pocket of the scale over that bin, placing a regulating apple of the next smaller packing size in the scale over the second bin, a next smaller packing size in the third scale, etc., and the fruit delivered to the bins by the machine will correspond in size with the regulating apples.

Think what it would mean to *you* to save from 25% to 50% on the cost of sorting this season. It would be a big item, wouldn't it? THE CUTLER Grader will absolutely do that, and once installed will keep right on doing it year after year—it is one of the best investments any grower or fruit packer can make. Don't let this day go by without writing us for catalog and prices.

The CUTLER Fruit Grader

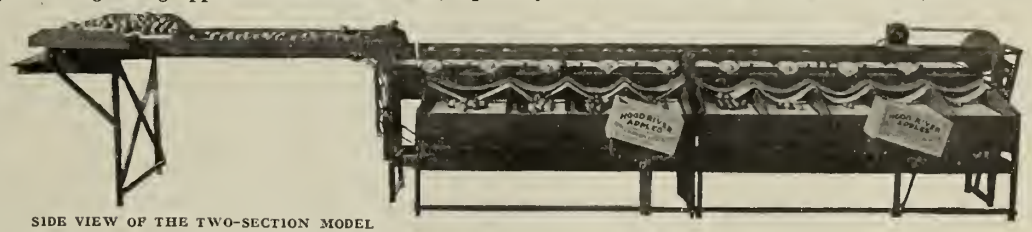
The Only Practical and Efficient Grader on the Market

THE CUTLER Grader is built in four sizes for box fruit growers and in two sizes for barrel growers, and a combination model for boxing the first grade and barreling the two lower grades.

THE CUTLER Fruit Grader is designed to rapidly handle and size apples, pears, peaches, oranges, lemons, tomatoes, onions and other fruits and vegetables, and has many features found on no other make. The best is the cheapest in the end.

This machine is the product of seven years' experience and test under actual conditions in scores of packing houses in most of the principal fruit districts of this country.

The accurate sizing of the fruit by this machine makes it possible for new packers to put up a creditable pack and in a short time to attain the daily output so necessary in the rush of the packing season. THE CUTLER Graders size the fruit by weight, this principle being more accurate than any form of transverse measurement, especially in varieties which are irregular in shape.



SIDE VIEW OF THE TWO-SECTION MODEL

Get Ready Now for the Big 1919 Crop

Reports from every section indicate a record-breaking 1919 crop, with a market waiting. THE CUTLER Grader will help you handle it. THE CUTLER sets a pace which keeps the whole force going at top speed—discourages loafing, and yet the sorters find the work easier. One man in one day with the CUTLER has been known to sort 500 packed boxes of apples.

THE CUTLER GRADER is made in the following sizes:

For Box Packing:	2 section model—Handles 2 grades	18 bins
	3 section model—Handles 2 or 3 grades	26 bins
	4 section model—Handles 2 or 3 grades	36 bins
	Big 4 model—Handles 2 or 3 grades	40 bins
For Barrel Packin	1 section model—Handles 2 grades	8 bins
	2 section model—Handles 2 or 3 grades	16 bins
	2 section model—Handles 3 grades. Combination box and barrel	

WRITE TODAY FOR CATALOG AND PRICES.

Cutler Manufacturing Company

351 East Tenth Street PORTLAND, OREGON

Mail This Coupon Today

CUTLER MANUFACTURING COMPANY,
351 East 10th St., Portland, Oregon.

Gentlemen:

Send me your Fruit Grader Catalog and Price List.

Name .....

Address .....

.....

Crop expected in 1919.....

BETTER FRUIT
An Illustrated Magazine Devoted to the Interests of Modern Fruit Growing and Marketing.
Published Monthly
by
Better Fruit Publishing Company
703 Oregonian Building
PORTLAND, OREGON

Diversifying the Orchard Industry.

With the practice of planting cover crops in orchards, that are admitted by experts to be beneficial, comes the greater opportunity for the fruit grower to diversify in fruit farming. The fact that the orchard industry now looks so promising should not cause those growers who took up the things that gave them an added income during the unprofitable years in growing fruit, if they were taken up intelligently, to abandon them. Growers who have not as yet endeavored to diversify in the orchard industry should study this question closely. That is, they should study it from the point of view where it will be an aid to them rather than a hindrance. They should know, for instance, before they go into it that their fruit farm will produce enough feed to maintain a certain amount of stock or poultry without their having to buy any considerable quantity of feed.

In an address made recently on this subject Prof. E. J. Iddings of the University of Idaho said that there are four reasons why the orchardist should be able to find a use for live stock in connection with his main business of fruit production. In the first place the live stock furnishes an additional source of income and usually contributes directly to the support of the family by furnishing animal products for home consumption. Second: Live stock may be made to furnish a market for many of the crops grown by the orchardist between the rows of trees. Third: The orchardist needs live stock for the purpose of maintaining soil fertility, a question that fruitmen are giving more and more attention to and which has become a very important one. The fourth reason Professor Iddings gave is because of the need of a greater production of food animals to feed the world at large.

With the successful experiments of growing alfalfa and other legumes in orchards it is possible to maintain the dairy cow, and a hog or two naturally fits in well with the keeping of dairy cattle, the refuse milk providing the best of foods. Chickens should also be made a valuable adjunct to an orchard as, apart from the food value and income they supply, they are no small factor in keeping down insect life.

As has been said by those who have studied orcharding carefully the great fruit-growing industry of the Northwest will lose nothing of its importance as a highly organized specialty by diversification. In fact it will be strengthened and rendered more stable by the keeping of a limited quantity of live stock to work in with the forage crops produced in orchards and the unsalable orchard products.

Fruit Prices.

The tendency of fruit growers this year, as reported from various districts in the Northwest, will be to hold their fruit for late sales. The strong demand for Northwest apples and other fruits that have already been received is given as the cause for this course as well as the fact that last year, although the growers received a profitable figure for their fruit by marketing it early, an unexpected advancing market late in the season allowed dealers to reap the largest end of the profit. Of course the grower wants to secure the largest return possible and, having this in mind, it is natural that he will be influenced to pursue a course that he thinks will obtain this result.

With reports from reliable sources to the effect that there is every prospect for a large crop of fruit throughout the country and that the conditions between the time of promise and actual harvesting are ever varying, it will be the part of wisdom to watch the marketing situation keenly. With the general tendency to hold up shipments until the last moment there is always the danger of flooding the market and bringing about the opposite condition from that desired. If prices justify it, as now seems the case, it will probably be better practice for the grower to permit the movement of a moderate amount of fruit early in the season. Appreciating prices for almost every commodity are causing the fruit grower as well as the producer in other lines of industry to indulge in a good deal of speculation. Market conditions for all food products are slightly unsettled owing to the putting into operation of the new government tax. During the next few months these conditions will become more adjusted and will allow producers to form better judgment.

Fruit growers should not be greatly influenced by the statements of dealers. On the other hand, they should not expect the impossible in the way of prices.

Logging in a Cherry Orchard.

"Making the Large Cut in the Cherry Tree," as Elihu Bowles, who has practiced this method in pruning in his cherry orchard calls it, may not be according to the best orchard practice, but from Mr. Bowles' own story it has undoubtedly proved successful. This character of tree surgery which must be looked upon as the last resort is not the kind that recommends itself to the watchful and skillful horticulturist. The latter would have started to use pruning remedies earlier in the life of the tree that would have prevented the later necessity for the "logging" methods which Mr. Bowles put into operation. In other words, he would have kept the big wood under control by pruning from year to year and not made it necessary to eventually practice mutilation to such an extent that the trees were robbed of their greater bearing qualities and symmetry, although they were preserved sufficiently to continue to bear.

The success that Mr. Bowles has attained, however, with his older trees will be useful to those who may have trees that are in a similar condition, and who will be able through learning of these methods to preserve them as income producers. As a new practice in horticulture this method is both instructive and interesting and goes to demonstrate the wonders that may be produced at times by abandoning the more scientific and beaten paths of horticulture.

Editorial Notes.

The time for harvesting the cherry will soon be with us and indications are that the superior varieties of this Northwestern fruit will be in heavier demand at a higher figure than for several years. The demand this year will be expanded very largely over former years by the canners, who are competing strongly for cherries with the fresh-fruit buyers at almost even prices.

The Oregon nut-growing industry is assuming important proportions. With 7,000 to 8,000 acres of English walnuts and filberts coming into bearing soon this branch of the state's horticulture must now be given a place in the front rank as a fruit-growing industry as well as an income producer. The nut growers of the state have recently formed a strong organization which is disseminating information that will produce the best results for nut growers.

Like other news that has been coming from German sources, it now appears that the statements that Germany had gone into the orchard business on a large scale during the war and had also erected a large number of dehydrating plants in order to compete with the rest of the world in the dried-fruit business is a myth. From the reports now received Germany will continue to be a large buyer of American fruits, provided the embargo is lifted.

In some sections Northwest fruit was seriously damaged by frost, but not enough apparently to affect the earlier estimates of a very large output this year. The damage was confined to tree fruits. The output from bush and plant fruits will be the largest in the history of the Northwest, while the yield of apples, pears and prunes will exceed that of last year.

More Storage for Wenatchee.

With other districts in Washington, Wenatchee is preparing this year for an expansion in the fruit crop. Two new warehouses, one at Cashmere and the other at Dryden, are now being erected. The Wenatchee Produce Company has completed a new store and storage room at Wenatchee and the Cashmere Apple Company has also added a new story to their building in Wenatchee proper. It is also reported that before next shipping season Seattle dealers, who are already interested in Wenatchee, will have provided for considerably more storage space.

The Outlook for American Apples in Germany

REPORTS which have reached the United States that Germany has been largely increasing the number of her orchards, especially as to apples, and has also expanded her dehydration plants with a view to making a heavy exportation of evaporated fruits are now said by the American consul at Rotterdam to have been greatly exaggerated.

In reporting the fruit situation in both Germany and Holland the American consul says:

"One of my informants, undoubtedly the leading importer of fresh and dried fruits in Rotterdam, states that, although he understands that even before the war Germany had commenced to increase the number of her orchards, especially as to apples, and to expand her dehydration factories, such increase is not very likely to be connected with the exportation of evaporated apples, as the apple crop in Germany has always been so small that the country in pre-war days was obliged to import large quantities from Holland, the United States and other foreign countries for home consumption. My informant further definitely states that Germany has not yet been exporting evaporated or dried apples, the more so as last year's European crop of apples was very small, and lack of sufficient fertilizer in Germany very materially affected the crop. In his opinion the European apples are not suitable for the manufacture of evaporated apples, owing to the large percentage of moisture which they contain."

The pre-war fruit trade with Germany was important. In 1914 the United States shipped 168,792 barrels of apples to that country and 272,382 in 1913. Seventeen million six hundred and forty-five thousand six hundred and ninety-seven pounds of dried apples were shipped to Germany from this country in 1913; 3,847,032 pounds of dried apricots 1,852,019 pounds of dried peaches and 17,417,865 pounds of prunes. In 1914, the year the war commenced, these quantities of dried fruits were cut to almost nothing and since then there have been no shipments at all. It is expected that this year the exportation of both fresh and dried fruits to Germany will be resumed on a large scale.

Northwest Prune Growers May Organize

After quite an extensive conference among the prune growers at Roseburg, Oregon, recently, it was pretty generally decided to organize a prune growers' association. The sentiment in regard to the formation of such a company seems to be in favor of control by the growers to direct the handling of their own fruit.

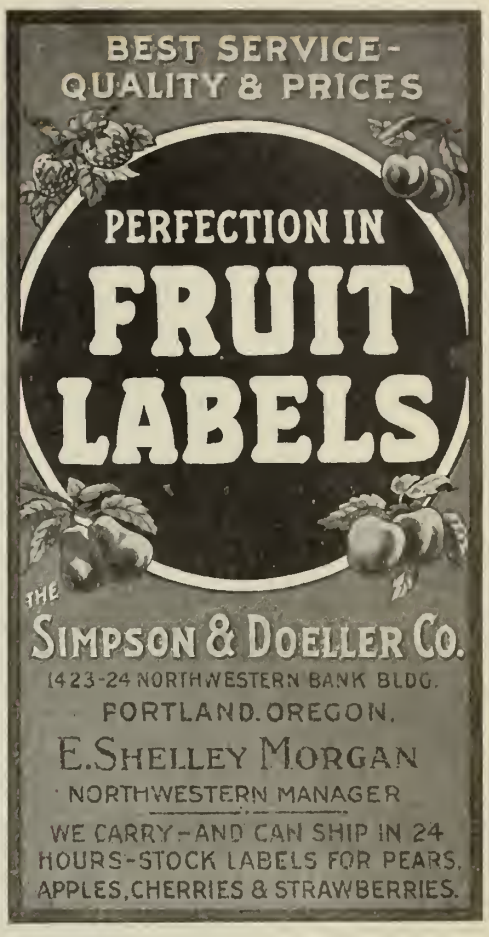
Robert Paulus, a well-known fruitman of Salem, recently made a trip to San Jose to confer with the California Prune and Apricot Association regarding the formation of the Northwest Prune Growers' Association. It is thought that by merging the local interests in the various prune-growing districts of the Willamette Valley, control of the Oregon prune business can be secured and result in better conditions for the growers of this fruit in all parts of the state.

Di Giordio in New Venture.

It will be interesting to Northwest fruit growers to know that Joseph Di Giordio, a large buyer of Northwest apples, has engaged in a new venture. Mr. Di Giordio is one of the organizers of the Mexican Fruit and Steamship Corporation, with a capital stock of $9,000,000. The new company expects to operate a line of ships, carrying fruit from New Mexico to New Orleans, and it is stated that this line of ships may become the nucleus of a line that will be put on to transport Northwest fruits through the Panama Canal.

Heavy Bloom at Wenatchee.

Reports now coming from the Wenatchee Valley state that a much heavier bloom was evident there this year than last. This is said to be true of cherries, peaches, prunes, apricots and other fruits in that section. Only in a few isolated districts was a shortage noted. In Yakima this shortage was almost entirely confined to Winesaps. Unofficial estimates now place the apple crop at Wenatchee at from 20 to 30 per cent heavier than last year.



Field Manager desires engagement in connection with improvement of logged off lands and colonization. Engineering experience in charge of construction on land projects, irrigation and drainage. Valuation surveys and reports.

Address W. M. S., in care Better Fruit Portland, Oregon

KEEP BEES!

HONEY IS THE BEST SUBSTITUTE FOR SUGAR

and is more Wholesome and Delicious.

IF you own an orchard or keep bees, you should have a copy of our Catalog. It lists everything for the successful handling of bees and the production of honey.

We are pioneers in the bee supply business in the Northwest, are thoroughly familiar with local requirements and carry a large and complete stock.

Ask for Catalog No. 203

You can keep bees any place where they can forage within a mile.

PORTLAND SEED CO.
PORTLAND, OREGON
PORTLAND SEED COMPANY TRADE MARK

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

Cletrac

TANK-TYPE TRACTOR

The logical successor to the horse and mule

MR. F. H. JOHNSON of New Augusta, Ind., reports that last July he used the Cletrac in loading hay and got in the crop from 140 acres at the rate of about 35 tons a day. "Besides getting the hay into the barn in such good time," says Mr. Johnson, "I made a substantial saving by not having to work my draft stock on this hot, horse-killing job."

Just another example of Cletrac adaptability and efficiency—just another case of doing *more* work *more* days in the year with the Cletrac.

The Cletrac tank-type tractor is versatile and extremely rugged.

It is small enough to be used economically on light jobs, yet powerful enough to handle the majority of the so-called *heavy* work about the farm.

It plows, harrows, plants, reaps, binds, threshes, hauls, cuts ensilage, fills silos, saws wood, and does practically all the work done by animal and stationary engine power.

It is the logical successor to the horse and mule. It is more efficient and does not only *more* work but *better* and *cheaper* work.

The tank-type construction of the Cletrac enables it to operate over soft ground where other machines would wallow and "dig themselves in"—an invaluable asset in the preparation of the seed bed.

It will go practically anywhere—*and does not pack down the soil.*

Orders are being filled in the sequence in which they are received. Place your order now—in time for summer work. Write for catalog and name of nearest Cletrac dealer.

The Cleveland Tractor Co.

19145 Euclid Avenue, Cleveland, Ohio

Largest producers of tank-type tractors in the world

Why We Should Cultivate the Orchard

By Charles E. Forkner

TO grow fruit successfully requires a man of sound business judgment and broad vision. He must have a knowledge of sound business principles and be shrewd enough to adapt the approved modern methods of business management which will curtail needless waste and attain greater efficiency.

Successful fruit growing requires up-to-date methods. Simply planting an orchard and waiting for it to mature and yield is not enough. The successful orchardist must exercise intelligent care over his fruit tract at every step, from the selection of his trees to the shipping of the ripened fruit. Nowhere will intensive farming and scientific methods produce greater rewards.

The fruit grower who is not on the alert to learn of the latest discoveries and appliances in combating the diseases of fruit and fruit trees and who fails to become acquainted with the latest methods of increasing the quantity and quality of his crop is as hopelessly outclassed as the grain grower who would attempt to take care of his harvest with cradles and flails.

Careful study of the conditions necessary for the growth and abundant yield of fruit-bearing trees has conclusively demonstrated that the soil in the orchard should be cultivated. The tree draws its vitality from the soil, through its roots, and it stands to reason that for best results the soil must be so treated as to furnish most easily and surely the food elements which the growing tree requires.

The purpose of orchard tillage may be briefly stated as, first, conservation of moisture; second, increase of fertilization; third, destruction of germinating insect pests.

Whether orchards should be cropped or given clean cultivation, or whether they should be allowed to stand in sod, depends largely upon the topography and local conditions of the soil and climate. Under most conditions a certain amount of tillage has a decided advantage. One thing is certain the vitality of the tree must not be allowed to weaken while the fruit is being matured. A steady normal growth of wood fiber must be maintained throughout the growing season if the tree is to mature its fruit properly and develop strong, healthy buds for a subsequent crop.

Moisture in the soil not properly tilled is lost by dissipation through the air above the surface of the soil. This is because capillary attraction has been established with the outside air and water from the subsoil escapes. While capillary attraction is not desirable at the surface of the soil, it is very essential below the first two or three inches of the surface. This surface capillarity may be easily prevented by frequent shallow tillage.

Tillage is the greatest factor affecting the duty of water. If the water absorbed by the soil can only be retained and made available for the growth of the trees, the problem of the duty of water has been practically solved. Orchards that will permit of thorough cultivation after a thorough application of water will show a decided increase

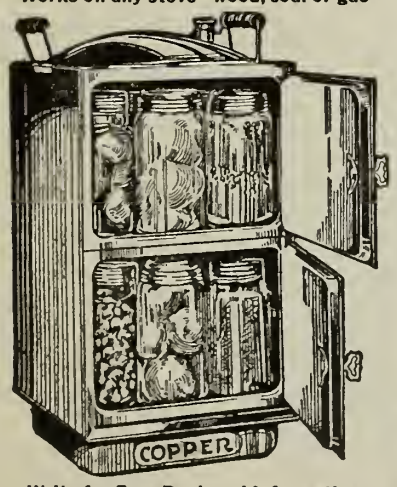
Cooking and Canning
IS A REAL PLEASURE

Note the picture. You cook everything at once, over one fire. Everything cooked perfectly under steam pressure—no burning, no mixing of flavors, no shrinkage of the food. With it you can everything by the cold pack method—fruit, vegetables, meats, etc. Thousands are using Conservo and say it's worth its weight in gold.

Conservo Cooker

No. 20—Conservo, 21½ inches high, 11¾ inches square; 4 removable shelves; 2 pans; cooks for 3 to 15 persons; holds 14 one-quart jars for canning. No. 9—Conservo is 13½ inches high; 2 shelves; 1 pan; cooks for 2 or 3 persons; holds 6 one-quart jars for canning.

Works on any stove—wood, coal or gas



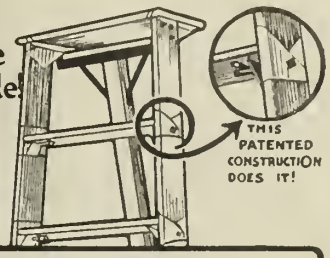
Write for Free Book and Information

"Conservo" is a time and money saver. It is a blessing to the housekeeper. Every home should have one. It will pay for itself in a few months' time by the saving in food and fuel. Foods cooked in it are delicious—they retain all their flavor and natural juices. Canning is done perfectly and with least possible effort.

Write today for booklet and information.

OUTWEST SUPPLY CO.
PORTLAND, OREGON

No More Wabble!



Junk Your Time-Killers!

Throw away your old, wabbly ladders before they cost you another cent! Get the

SECURITY LADDER

"A Ladder with the Wabble left out"

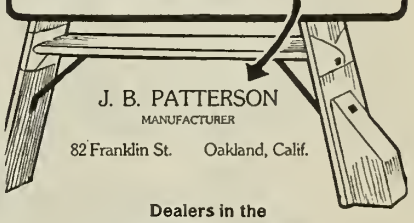
—CUTS YOUR PICKING COST by enabling picker to reach out farther, feel greater sense of security and quit changing position of ladder every half-minute. Helps picker do a better day's work. Increases your profit!

The use of 2 ounces of sheet steel in the form of a supporting cuff-bracket and machine wrapped around stile at each step-end makes SECURITY ladders strongest where other ladders are weakest.

Think of that—SECURITY ladders strongest where the greatest strain comes, and where other ladders are weakest!

Many of the most progressive orchardists on the Pacific Coast use SECURITY ladders. SECURITY ladders save them money, and they will save YOU money. Equip NOW with SECURITY. Junk your old time-killers. Let the SECURITY add money to your bank account!

For sale by SECURITY dealers ONLY. Write for name of your dealer and new booklet. Write now to



J. B. PATTERSON
MANUFACTURER
82 Franklin St. Oakland, Calif.

Dealers in the SECURITY LADDER

Salem, R. L. Farmer Hdw. Co.
The Dalles, Walther-Williams Hdw. Co.
Wenatchee, Wenatchee Produce Co.
Yakima, A. B. Fosseen & Co.

A modern type of cultivator at work in an orchard.

in the yield, better color and quality of fruit. It is known that the evaporation from an uncultivated orchard in a single month is about four times that of a similar orchard having a three-inch dirt mulch.

One of the most important plant and tree foods is nitrogen. Large sums of money are spent every year by farmers and fruit growers for fertilizer containing this element. The air we breathe is the greatest known storehouse of nitrogen, but the nitrogen in the air is not in a form which can be directly used by plant life. It can, however, be converted into a usable form by the action of soil bacteria—those microscopic organisms which exist in all soil and materially affect the production of crops.

Cultivating brings the soil bacteria into direct contact with the air from which they take the nitrogen, and convert it into food for the adjacent plants and trees. Without cultivation, this beneficial activity of these minute organisms is greatly restricted, and consequently uncultivated orchards are not as well supplied with the food materials required for the prolific production of fruit of the best quality.

The necessity for cultivation, to produce healthy trees and good fruit, is not mere theory. Cultivation holds moisture in the soil and gives the rain and sun a chance to produce the best results. Cultivated trees are more vigorous and live longer than uncultivated trees. Cultivation increases the size and improves the quality of the fruit.

Cultivation should begin early enough to maintain what moisture has been stored up during the dormant season, and should be kept up with such frequency that weeds will not have a chance to germinate or obtain a foothold until late in the growing season.

The best tillage is that which begins early, using some light running, rapid working tiller which is designed for that purpose. I would not use a turning plow in an orchard if there is any way to avoid its use. More orchards have been ruined by the use of turning plows and improper tools in the hands of careless workmen than from any other cause. Throwing the dirt either to or from the trees with the turning plow is injurious. The system of level cultivation is the correct one in most instances, and only tools which will leave the soil level should be used.

What They Are Doing in Fruit in California

FRUIT GROWERS in the Santa Clara Valley are reported to be extremely optimistic. All varieties of fruit there with the exception of Blenheim and Hemskirk apricots have set heavily and bumper crops are expected. There was an extra heavy set of peaches and prunes and apple trees had a bloom far above the average. The weather has been favorable to all kinds of California fruit. The high prices offered by packers for prunes and the prospects of fine crops of other fruit has stimulated prices of orchard property.

The establishing of an experiment station in the Santa Clara Valley for deciduous fruits has been accomplished after a long fight by the recent passing by the state senate of an appropriation of $100,000 for carrying on the work. The station is to be located at San Jose, and it is announced that E. R. Ong, professor of entomology of the University of California, will have charge of it.

An expected invasion of tent caterpillars in the Santa Clara Valley is now expected and steps are being taken under the direction of the county horticultural agent to exterminate the nests.

Although very flattering offers had been made to the California Prune and Apricot Growers' Association of the Santa Clara Valley up to the middle of May, Manager Coykendall of the association had refused all offers. In taking this action he announced that nobody at that time knew what the extent of the crop would be or what kind of a market there would be for it. The California Prune and Apricot Growers' Association now numbers 6,500 members.

A proposed increase in the taxation of fruit trees in the Santa Clara Valley has created strong opposition among the growers and the various farmers' organizations there have gone on record with resolutions opposing it.

The depredations of picnic parties in California on fruit orchards has caused the Improvement Club of Cupertino to make a complaint to the district attorney's office to aid in enforcing the laws against the theft of fruit. The matter is reported to be most serious along the public highways.

As an indication of the big movement that takes place when the cantaloupe crop begins to move in California one firm alone in the Turlock district requires twenty motor trucks, five swampers, four bookkeepers, sixteen inspectors, five checkers and several extra stenographers to handle the business. Five hundred refrigerator cars are now being repaired in this district to handle the coming fruit shipments.

The Big Factor Is Dependability

Any truck will perform more or less satisfactorily under favorable conditions, but dependability, according to the BETHLEHEM standard means consistant performance under any road or load conditions.

1½-ton Chassis **$1,965** 2½-ton Chassis **$2,365** 3½-ton Chassis **$3,465**

F. O. B. ALLENTOWN, PA.

SOME GOOD TERRITORY OPEN TO DEALERS

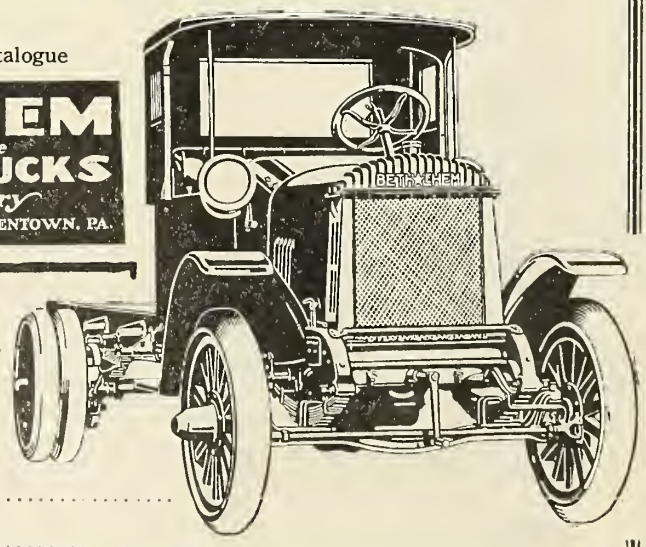
NORTHWEST AUTO CO., Portland, Oregon

Distributors for Oregon and Washington

Mail the Coupon for Catalogue

BETHLEHEM Internal Gear Drive MOTOR TRUCKS Dependable Delivery

BETHLEHEM MOTORS CORP'N. ALLENTOWN, PA.



To Northwest Auto Co.
Portland, Oregon

Send catalogue of Bethlehem Truck to

Name .....

Address .....

Northwest Fruit Notes from Here and There

Reports from Centralia state that the Puyallup and Sumner Fruit Growers' Canning Association, which recently took over the Lewis County Canning Association, has been closing contracts with berry growers in that district at 12 cents per pound for strawberries and 8 cents per pound for loganberries. In some cases these prices are reported to have been made on five-year contracts.

Offers of six and one-half cents per pound for Royal Ann cherries from the canners are reported in the Yakima district. This price is one and one-quarter cents higher than the maximum reached last year. The cherry crop in the Yakima country is said to give promise of being very heavy.

Walla Walla prune growers are expecting high prices. The damaging of the Idaho crop, which is said to have been very extensive, is expected by Walla Walla growers to boost the price of the Washington crop very materially.

According to F. B. Martin, Northwest Field Manager of the Earl Fruit Co., apple growers in Oregon and Washington will receive fancy prices for all fruit this year. Mr. Martin also says cherries will be high as well as peaches. He predicts that fancy pears will sell readily at $3 per box.

In the Wenatchee country rumors have been in circulation for some time that buyers are already negotiating for next fall's apple crop. It is stated that tentative offers have been made and in some cases agreed upon. However, the only actual offer that is known to have been made was one put into effect by a local firm, which is said to be entering into contracts with growers for Jonathans and King Davids on a basis of $2 per box for extra fancies and other grades in proportion. This is the first time in the history of apple growing in the Wenatchee Valley that contracts for apples have been made this early in the season at a specified price.

From Seattle comes the information that representatives of apple buyers in the East and of English importing houses have already begun their canvas to secure Northwest fruits. These Eastern buyers are said to be offering $2 per box for extra fancy Jonathans and $1.75 for Winesaps.

After a 10,000-mile trip, taking in practically all the important fruit jobbing centers of the United States, W. L. Dow, of the Dow Fruit Company, reports a greatly increased demand already for Northwest boxed apples. These demands, Mr. Dow says, are coming through retail dealers.

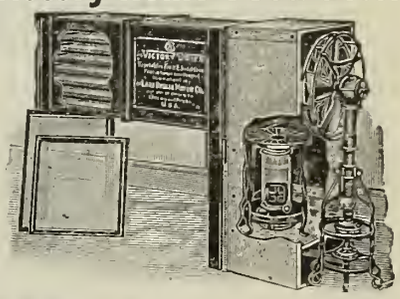
The demand for nursery stock throughout the Northwest is now the heaviest in years, despite the fact that prices for stock are the highest ever known. Nurserymen say that the planting of a very large area to orchard this spring has created this exceptional demand.

The grape crop, which is one of the leading fruit industries at Grants Pass, is said to have come through the frost period in fine shape and predictions there are now for a very heavy yield. Other fruit in the Grants Pass district, it is stated, also give promise of a good yield.

One of the new fruit by-product plants that is attracting considerable attention was recently completed at Wenatchee. It is known as the Shepard Product Plant and expects to use 400 cars of apples during the coming season. The industry which the Shepard Company will engage in is the manufacture of concentrated fruit bricks. The history of the development of the fruit brick is an interesting one. Mrs. Shepard, while in the East, noticed that the apple butter left on the sides of the barrels dried up, but remained in perfect condition indefinitely. Later she began to experiment and the result was what is known as the "fruit-brick," or concentrated fruit. The product has become popular and the demand for it is said to be greatly on the increase.

The cranberry industry in Oregon, which is principally confined to the Astoria district, is rapidly becoming of importance. An extensive acreage is already in these berries, and more was planted this year. One grower at Astoria last year sold 1,000 barrels of cranberries for $9,000, or $9 a barrel. For several years Astoria cranberries had a number of reverses in the business until they learned the proper methods of cultivation, but they are now making a big success of it.

Victory Home Food Drier



For vegetables, fruit and seed corn. It saves time, labor and money. Foods preserved in **The Victory Drier** "taste just like fresh picked." The process is simple, easy and sure and the foods thus preserved are delicious and wholesome. This is the best and the only dehydrator of the type in the world. Scientific, proved. Run by a Kerosene fan. Ask for catalogue D 2.

The Lake Breeze Motor, 561-B W. Monroe St., Chicago

NOW is the time to send to

Milton Nursery Company

MILTON, OREGON

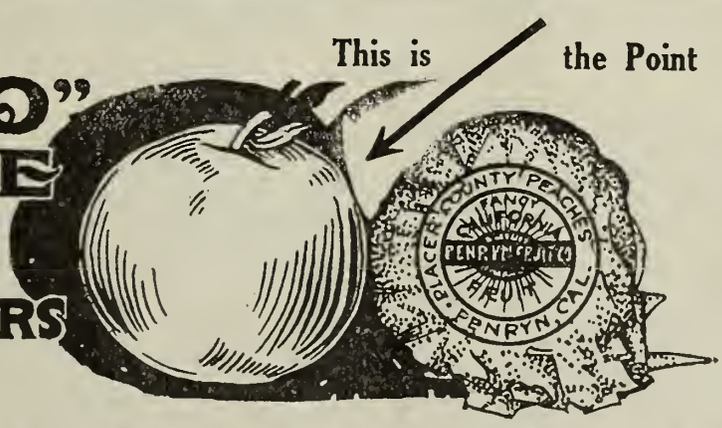
FOR THEIR 1919 CATALOG.

FULL LINE OF NURSERY STOCK.

"Genuineness and Quality"

"CARO" FIBRE FRUIT WRAPPERS

This is the Point



Chemically Treated "Caro" Protects

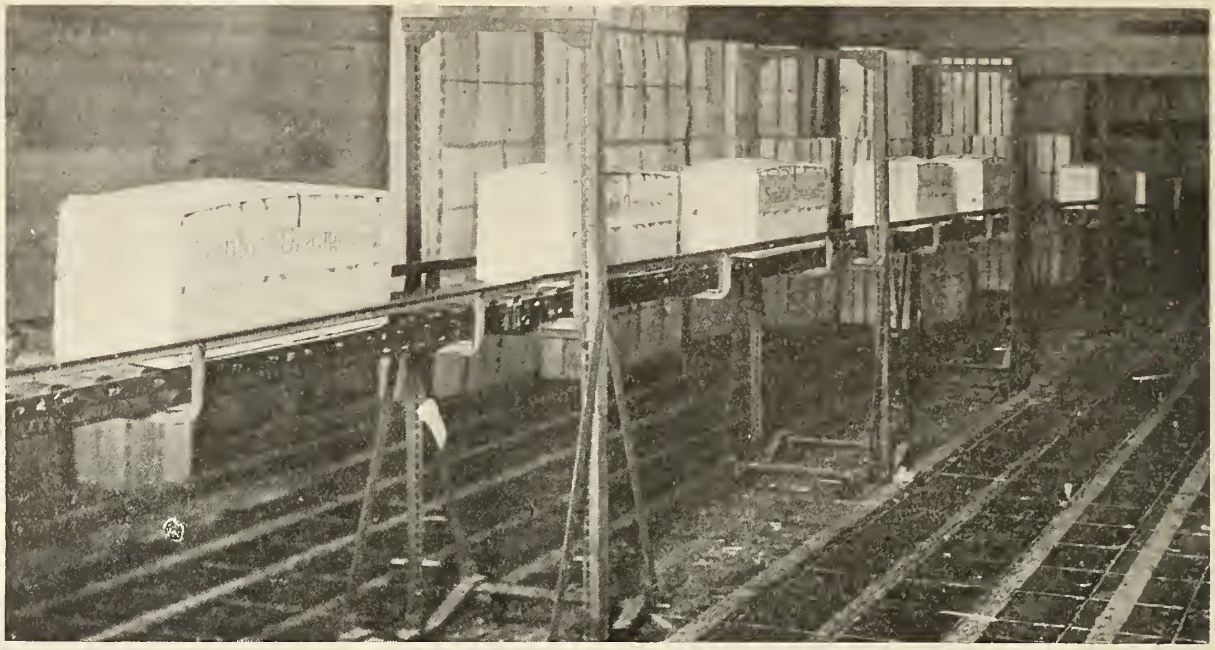
"Caro" from DessiCARE (to dry up)

"Caro" Prolongs the Life of Fruit Why?

Fruit decomposition starts from a bruise which opens tiny holes and permits the juice to escape and BACTERIA to enter. "Caro" clings closely and dries up the escaping juice. "Caro" ingredients harden the spot, kill the BACTERIA, arrests the decomposition—and thus **PROLONGS THE LIFE OF FRUIT.** If your fruit is worth shipping it is worth keeping in best condition.

Demand "CARO"—Wrap Your Fruit in "CARO"—The Fruit Buyer Knows "CARO"

Order from Any Fruit Company or American Sales Agencies Co., 112 Market St., San Francisco



Better profits with gravity conveying

A Mathews Gravity Roller Conveyer will increase your profit sheet by

——reducing the labor costs. It enables two men to do the work of several.

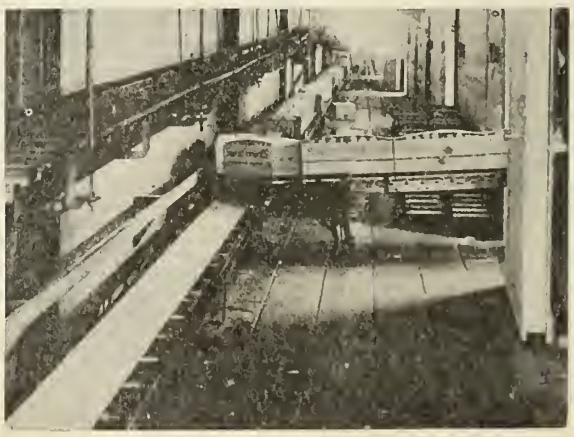
——raising the market value of fruit. Less handling is required, consequently fruit reaches the buyer in better condition.

——speeding work and eliminating delays. This also helps to get fruit to market in the best condition.

The first cost of a Mathews is small, the upkeep trifling. Write to us for detailed information.

MATHEWS GRAVITY CARRIER COMPANY, 133 Tenth Street, Ellwood City, Penna.
Branch Factories: **Port Hope, Ontario—London, England**

MATHEWS
SPEED ECONOMY
GRAVITY ROLLER CONVEYER



Northwest 1918 Apple Season Sensational

THE 1918-1919 apple-shipping season in Oregon, which recently closed, is reported by Robert L. Ringer, government investigator in market surveys with the United States Agricultural Department, to have been the most sensational that the apple industry of the Northwest ever experienced. The report says that in spite of a big increase of production in the East and prohibition of export shipments existing at that time, the market in September did not open at the bottom, but rather where it left off the year before, and scarcely weakened a single day until it wound up in April with sales of Winesaps, in carlots f.o.b. shopping point, $4 per box.

Prices opened in September with extra fancy stock of Winesaps bringing $1.85-$2.00, Jonathans $1.85-$2.15, Arkansas Blacks $2.25, Rome Beauty $1.75, Spitzenbergs $1.90-$2.30, Delicious and Winter Banana $2.65-$3.00, Ortleys $1.70-$2.25, Newtowns $1.70-$2.25 and Ben Davis $1.45-$1.60.

Prices held a steady level with many wondering when the break would come. All speculated on the effect the new citrus crop would have, but the big demand at undreamed-of prices continued, and by the new year Winesaps were selling at shipping point for $1.90-$2.10, Rome Beautys $2.00-$2.25 and Spitzenbergs $2.00-$2.10. No particular demand existed for Newtowns and they alone hung back.

Export of Apples Is Resumed

In the meantime it had developed that although the Northwest apples looked as well as ever they did not have the keeping qualities of former years. The dry and early season had its peculiar effect upon them and the Jonathans in particular went to pieces early. Rome Beautys did not keep so well and the Spitzenbergs generally softened a month early. The Winesaps and the Newtowns were not so much affected and displayed almost their usual storage qualities and an unusual demand began to force their prices up. By the middle of January, Newtowns were bringing $2.35 at Hood River, and Arkansas Blacks $2.40, while in the Yakima Valley Winesaps were going at $2.50-$2.70.

The removal of export prohibitions and the availability of space in ships to carry apples to Europe furnished all the incentive needed to boost the market then and by the middle of February Winesaps were bringing $3.50-$3.75 in straight cars, Newtowns $3.00-$3.25 and extra fancy Ben Davis $2.50.

Those prices prevailed practically the balance of the season and brought apples at retail in the cities almost to the prices of oranges. A few sales were made after April 1st at $4 per box, and one car is reported, unofficially, to have brought $4.50 at Yakima.

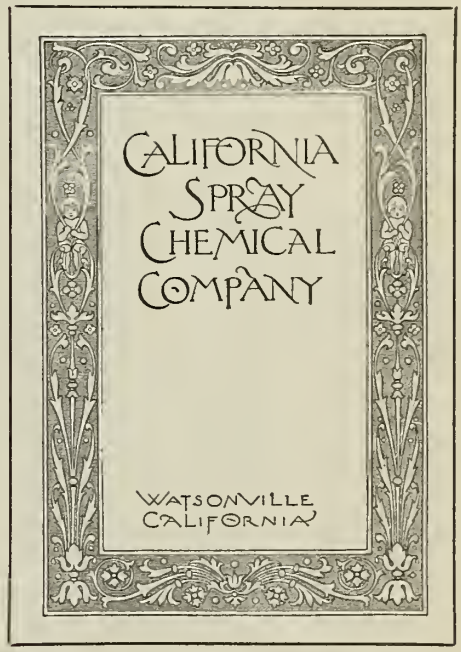
The total number of cars shipped from Oregon during the past season was 2,180 cars, a decrease of 1,268 cars as compared to 1917, when 3,448 cars were shipped. The decrease is accounted for, according to the report, by the late frosts of last spring which cut the yields of Hood River and Eastern Oregon seriously and almost wiped out the prospects of the Rogue River Valley and Western Oregon.

Big Movement in October and November

The accompanying table accounts for the origin of each of the 2,180 cars shipped from Oregon. October and November were the banner shipping months and practically two-thirds of the crop rolled then. Hood River leads as a shipping point with 790 cars, and Odell and Van Horn, two points on the Mount Hood Railroad, rank second and third. Milton is the shipping center of Eastern Oregon and Medford of the Rogue River Valley.

SHIPMENTS OF 1918 APPLE CROP FROM OREGON IN DETAIL

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Tot'ls
Alicel	..	..	..	..	5	..	..	..	..	..	5
Alvadore	..	..	1	1	1	..	..	..	..	..	3
Chemawa	..	..	..	..	2	1	..	..	..	..	3
Creswell	..	..	..	5	1	..	..	..	..	..	6
Dallas	..	..	..	2	..	..	..	..	..	..	2
Dillard	..	..	..	1	2	..	..	..	..	..	3
Dufur	..	..	..	8	4	..	..	..	..	..	12
Eagle Point	..	..	..	1	..	..	..	..	..	..	1
Elgin	..	..	..	..	2	2	2	..	..	..	6
Eugene	..	..	..	2	1	..	..	..	1	..	4
Fargo	..	..	..	..	1	1	..	..	..	..	2
Freewater	..	..	..	..	1	..	..	..	..	..	1
Green	..	..	..	4	..	..	..	..	..	..	4
Hood River Valley—											
Dee	..	..	..	1	2	3	..	..	..	..	6
Hood River	..	5	37	212	193	125	72	70	65	11	790
Mohrs	..	..	..	10	4	3	1	3	..	..	21
Mt. Hood	..	..	1	..	..	..	..	..	..	..	1
Odell	..	..	1	128	145	89	20	41	1	..	425
Parkdale	..	..	2	19	21	2	..	..	1	..	45
Trout Creek	..	..	..	..	4	2	..	..	..	..	6
Van Horn	..	..	1	117	167	76	17	7	..	..	385
Woodworth	..	..	..	1	3	1	..	..	..	..	5
Imbler	..	..	..	..	..	..	..	3	..	..	3
Irving	..	..	..	1	1	..	..	..	..	..	2
Joseph	..	..	..	..	1	..	..	..	..	..	1
Junction City	..	..	..	..	..	..	..	1	..	..	1
La Grande	..	..	..	..	..	..	13	10	..	..	23
McMinnville	..	..	1	2	2	1	..	..	..	..	6
Milton	2	1	6	52	53	5	..	1	..	..	119
Monroe	..	..	..	1	..	..	..	..	..	..	1
Mosier	..	..	..	15	36	18	..	1	..	..	70
Mt. View	..	..	..	1	..	..	..	..	..	..	1
Newberg	..	..	..	1	..	..	..	..	..	..	1
Polk	..	..	..	..	1	..	..	..	..	..	1
Portland	..	..	..	1	4	2	..	3	6	5	21
Rogue River Valley—											
Ashland	..	..	..	..	2	2	..	..	..	..	4
Central Point	..	..	1	2	..	1	..	..	..	..	4
Gold Hill	..	..	..	3	..	..	..	..	..	..	3
Grants Pass	..	..	1	8	6	3	..	1	..	..	19
Medford	..	..	..	48	27	11	..	1	..	..	87
Phoenix	..	..	..	..	..	..	1	..	..	..	1
Riddle	..	..	..	1	..	2	..	..	..	..	3
Talent	..	..	5	1	..	..	..	..	..	..	6
Voorhies	..	..	..	4	..	..	..	..	..	..	4
Roseburg	..	..	..	16	9	2	..	..	..	..	27
Salem	..	..	2	1	3	1	..	..	..	..	7
Sheridan	..	..	..	3	2	..	..	..	..	..	5
Stanfield	..	..	..	2	1	..	..	..	..	..	3
Summit	..	..	..	..	1	..	..	..	..	..	1
The Dalles	..	2	..	1	3	..	2	2	..	..	10
Union	..	..	..	..	2	1	1	..	..	..	4
Wasco	..	..	..	..	1	..	..	..	..	..	1
Wilsonville	..	..	..	..	1	1	..	..	..	..	2
Yoncalla	..	..	..	..	4	..	..	..	..	..	4
Totals	2	8	58	675	719	355	129	144	74	16	2180



Let 'er Rain!

If you've a man's work to do, wear Tower's

Fish Brand Reflex Slicker

The coat that keeps out *all* the rain. *Reflex Edges* stop every drop from running in at the front.

Protector Hat, too.

Satisfaction Guaranteed

Send for free catalog

A. J. TOWER CO. BOSTON

TOWER'S FISH BRAND TRADE MARK

119

Where Currants and Gooseberries Grow Best

CURRANTS and gooseberries are valuable small fruits for many farmers and gardeners, but the area of the United States in which they can be grown with marked success is less than one-half of the country. The section most favorable for them is the northern half of the country and east of the one-hundredth meridian, which runs near the center of the Dakotas, Nebraska and Kansas, according to the Wisconsin Experiment Station.

Currants and gooseberries require a cool, moist climate, are injured by the long hot summers of the Southern States, except in the higher mountain altitudes, and do not succeed very well even in Missouri and Kansas. They are not adapted to the hot interior valleys of California, but are grown in the northern coast counties of that state and in the coast portions of Oregon and Washington. Planting may be done in late autumn or early spring.

Even in the states where currants and gooseberries grow best there is a limiting factor which cuts down their cultivation materially. They spread white pine blister rust and it is necessary to eradicate currant and gooseberry plants already growing and to prevent new plantings wherever the white pine is an important forest tree and there is danger of the disease being spread to valuable forest areas. Farmers' Bulletin 1024, just issued by the United States Department of Agriculture, discusses the cultivation of currants and gooseberries in detail and gives a summary of state laws controlling them.

Another limiting factor is the currant maggot, for which there is no known means of control.

The amateur in the cultivation of these fruits, after finding that he is subject to none of the factors referred to, will get a product useful chiefly in making jams, jellies, preserves and pies, rather than in the fresh state. Both fruits contain a large amount of pectin, which is necessary for jelly making. The currant is commonly considered the best of all fruits for making jelly, but comparatively few know that gooseberry jelly is nearly, if not quite, as good as currant jelly and may be made much more cheaply. In addition to numerous ways in which currants and gooseberries may be used, they are especially valuable for combining in jams with other fruits. They are also useful for unfermented juices, conserves, preserves, pastes, marmalades, spiced products, catsups, and for canning.

Fruit, Fruit Growers and Fruit Growing

THE 1919 fruit crop of the Yakima Valley it is now estimated will be in the neighborhood of 14,675 cars. Earlier in the season the estimate was placed considerably higher, but owing to the frost damage, which is believed by District Horticultural Inspector Wood to have cut down the expected crop 20 per cent, the estimate has been lowered. Another cause for the lower estimate is said to be due to the fact that Winesap trees throughout the valley have bloomed light this year. The detailed estimate of the number of cars which it is expected the Yakima Valley will ship this year is: Apples, 8,960; pears, 2,500; peaches, 2,475; plums and prunes, 250; mixed fruits, 250.

At the present time it is reported that there are many uncertainties as to the fruit situation in Western New York, one of the biggest fruit-producing centers in the United States. A three-day snowstorm and freeze, followed by a warm spring temperature, did considerable damage. The most severe damage was done to the peach, plum and cherry crops, the injury in some districts being reported as high as 50 per cent.

Although the 25 per cent increase in freight rates on Northwest fruit shipments went into effect during the latter part of May, representatives of Northwest fruit-shipping concerns intend to make a fight to have them reduced. Efforts will be made to show that fruit shippers are being discriminated against in the matter of freight rates.

Forty thousand boxes of Hood River Newtown apples recently reached the American soldiers on the Rhine, according to a letter received by the Hood River Apple Growers' Association from A. W. Briggs, a former Portland traveling man now with the American army stationed at Coblenz, Germany. The writer says that the Oregon soldiers who purchased the fruit were highly delighted.

Oregon fruit-crop conditions are reported to be splendid. Apples, peaches, plums, cherries and pears are reported to be well set. Prunes, with the exception of some of the older trees in the Willamette Valley, show promise of a good crop.

Almost all of the prune crop of Clarke County, Washington, has been sold and the average price paid, which was 14 cents, was the highest that Clarke County growers have received in recent years. Present indications, it is said, point to a large crop of prunes in this county. Three large prune-packing plants will operate in the Clarke County district this year to pack out the crop. In addition to the older plants of the J. K. Armsby and the A. C. Burdick companies, a new company, the Columbia Packing Company, is now building a large plant at Vancouver.

The first representative of an English apple-buying house to arrive on the Coast this year was Arthur B. Johns. Mr. Johns, who visited Hood River and the other Northwest districts during the past month, is from Liverpool, and stated that the idea that the English markets demanded small apples altogether is erroneous. He stated that the 125 size is the favorite, although fruit as small as 175s is salable.

The first box of California cherries which arrived in New York about April 25th, after spirited bidding among fruit buyers, brought $50.

Sales managers of Northwest apple-shipping associations and firms report

Seasoned Lumber

Boxes made from SEASONED lumber insure your fruit pack against mildew which causes thousands of dollars' loss every year where containers made of green material are used

Bloedel Donovan Boxes

Are Made of Seasoned Lumber

Carefully inspected and expertly sawed.
Prompt deliveries assured.

BLOEDEL DONOVAN LUMBER MILLS
1018 White Building, Seattle, Wash.

that never in the history of the industry has there been so much interest shown by foreign dealers to obtain fruit. They report that they are being flooded with letters from abroad making inquiries about crop conditions and expected prices.

Organized with a capital of $10,000, the Grandview (Wash.) Fruit & Storage Company will enter the fruit-handling field at that point this year. The new firm is composed of Russell Parker, formerly with the T. W. Robinson Company, and E. W. Cox, for the past two years local manager of the Earl Fruit Company. The new firm will take over the E. J. Haaze warehouse and will do business on a cash buying basis.

Reports of injury to fruit at Grandview, Washington, by frost are reported to have been greatly exaggerated and experts who have made a survey of the situation state that they now expect that the largest tonnage of fruit ever moved from that district will be shipped this year.

The most favorable conditions for fruit that have been known in the Hood River Valley for several years are causing authorities on the matter there now to predict that a 2,000,000-box crop will be shipped out of that district this year.

Strawberry shipments to Eastern markets are the lightest known in years and the trade is having a hard time to supply the demand. Many of the Eastern markets are reported to be practically without this variety of fruit. One reason for this is said to be that Southern strawberry growers have put their land into cotton, potatoes and other crops that are now paying better.

Frost did but little damage in the Wapato, Washington, district this year and normal crops will be the result. The fruit on the limbs of early peach trees was hurt some and apricots sustained slight damage, but it is now announced that both the Wapato and Donald districts will ship large quantities of fruit this year.

The pool-car plan has been adopted by the Prosser (Wash.) Fruit Company. According to Manager Loderhouse, under this method the grower with a comparatively small quantity of fruit who has more than the local market can consume will be enabled to pool it with other small shipments and find an outside market for it.

While many orchard districts are coming to the front with the announcement of increased setting of fruit trees this spring, Yakima County, Washington leads all the other sections of the Northwest. One thousand acres of new orchard have been set out in Yakima County this year, according to Horticultural Inspector C. B. Wood.

Washington fruit crops this year will far exceed those of last year, is the opinion of J. H. Jacobson, field agent of the Bureau of Crop Estimates, in charge of the Spokane office. Mr. Jacobson also announces that the acreage of winter wheat in Washington has been doubled.

Pittsburgh Perfect Cement Coated Nails are of the highest standard

The Heads don't come off. Given Preference by Largest Pacific Coast Packers

MANUFACTURED EXCLUSIVELY BY
PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.

A. C. RULOFSON COMPANY, Pacific Coast Agents
359 Monadnock Building, San Francisco, California

WHAT EVERY HOME CANNER SHOULD HAVE

ONE of our **H. & A. Hand Power Double Seamers.** It is the only hand power seamer built that will seal all sizes of sanitary fruit and vegetable cans. Write for prices and descriptive matter to Department **T.**

HENNINGER & AYES MFG. CO., Portland, Ore.
Builders of Seamers and Steam Pressure Canning Outfits

APPLES **PEARS**

For European Distribution

Gerald Da Costa

Long Acre, Covent Garden, London

Cables: "Geracost, London." Codes: A. B. C. 5th Edition and Private

SHIPPING AGENTS:
Lunham & Moore, Produce Exchange, New York

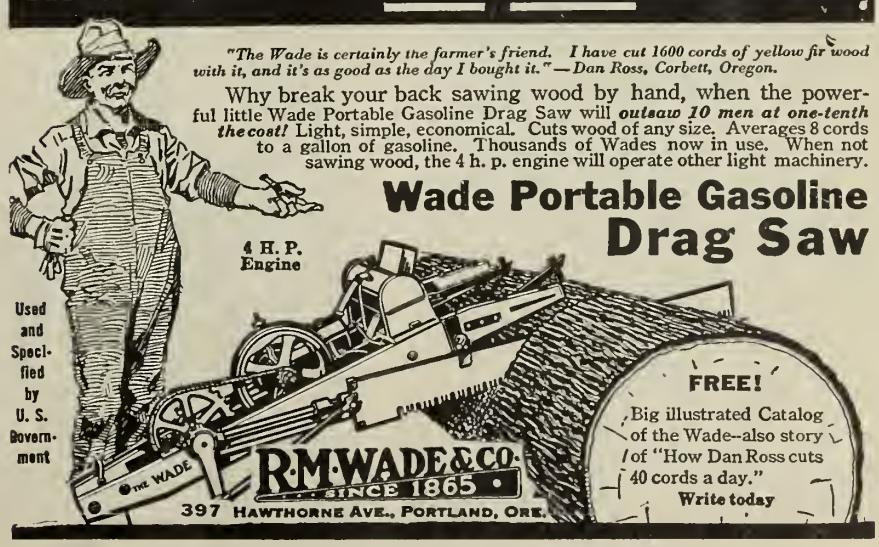
WE DEVELOP KODAK
FILMS FREE and pay return postage when prints are ordered

Mail us films with Six Cents Stamps for each desired print. We return excess.
NO CHARGE for unprintable films.

Woodard, Clarke & Co.
Photo Supplies
Wood-Lark Bldg. Portland, Oregon
Ask for Catalogue and Special Offer.

Nice Bright Western Pine
FRUIT BOXES
AND CRATES
Good standard grades. Well made. Quick shipments. Carloads or less. Get our prices.
Western Pine Box Sales Co.
SPOKANE, WASH.

"My WADE Saws Four Cords an Hour"!



"The Wade is certainly the farmer's friend. I have cut 1600 cords of yellow fir wood with it, and it's as good as the day I bought it."—Dan Ross, Corbett, Oregon.

Why break your back sawing wood by hand, when the powerful little Wade Portable Gasoline Drag Saw will *outsaw 10 men at one-tenth the cost!* Light, simple, economical. Cuts wood of any size. Averages 8 cords to a gallon of gasoline. Thousands of Wades now in use. When not sawing wood, the 4 h. p. engine will operate other light machinery.

Wade Portable Gasoline Drag Saw

FREE! Big illustrated Catalog of the Wade—also story of "How Dan Ross cuts 40 cords a day." Write today

Co-operation as Seen at the Skookum Convention

Continued from page 6.

Age of the Apple when we had "perfect control."

The growers who had come here from their orchards in Idaho, from Oregon, from the Okanogan, got their money's worth when they listened to Corbaley. He had a message for them that rung with big truths. I recall vividly how he told them that every man who stands out of organization, who is not partaking of organized merchandising of apples, is causing all the rest to pay that much more for the marketing of their apples. That is to say, your neighbor who does not belong to any organization, any merchandising organization, when you do, is causing you and himself to pay more. Corbaley told his hearers to carry that message back with them. And they did. Every man believed every word he said, because it was obvious the way he put it. It was a mighty appeal to the grower to get out of his solitary condition, alone with his pet theories and his prejudices that get him nowhere. Then when Corbaley spoke of general business conditions, of things that were being done by organized business interests for export trade, of things the Chamber of Commerce were doing, of the great machinery that is being invented to handle trade, of the new merchant marine, of refrigeration in that merchant marine so that apples can be taken care of (this the Chamber of Commerce was looking after), I just felt, yes, Mr. Solitary Applegrower, over there by your fence corner, you don't care about all these big things in which you have no voice, but they are your life-blood and your children's life-blood just the same; and you are mighty, mighty glad someone is named George.

"I am just a plain business man like the rest of you," said Corbaley. "I am not an economist. I think, however, those truths about the condition of the future of this market are mighty important to you men, and that you should have a high vision of the commercial and marketing structure you should continue to build. You take a great pride in your Skookum organization. Pride is all right. But there is not a man among you who should be satisfied with anything less than a merchandising method that will be the best in the country."

He had already told them of the need of standing together to bring about that ideal condition of marketing such as they have practically managed for the oranges and raisins of California; he had showed them they must have this—that only distress must come from disorganization. "Now you Skookum men have a wonderful foundation," said he. "You men have a wonderful opportunity to build a great merchandising structure. I have talked to you this morning primarily to welcome you, but really with the idea of wanting to say what I could to cause you to cast your vision higher, to keep your structure building with a great ideal in front of you."

Well, it was a great, inspiring address.

Now, more about leaning on one another. I have mentioned Robinson. Well, anyone who could hear this master traffic manager tell of the things done by organization for our apple growers, and not go away a convert to wanting to have a hand in it, can't be placed. Dumas was in the chair. "Gentlemen," said Mr. Dumas, in introducing him, "it has been my pleasure to attend some conferences in which transportation problems and traffic problems have been discussed, and in every one of these that I have been to, the foremost and best fighter on the job has been Mr. J. Curtis Robinson."

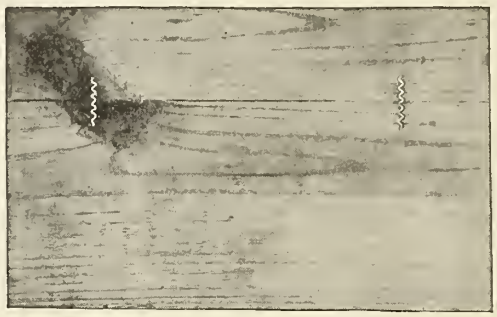
Robinson started right out by saying that if you did not have safe transportation and dependable schedules, your fruit business would not amount to much. "Good transportation," said he, "does not just happen." Well, I know it does not just happen. It struck me right away that the Mr. Solitary Fruit Grower who let it just happen, why, he would not be a fruit grower very long. That stands to common horse sense. Seems to me any fruit grower in the Northwest would want to belong to some

ACME **Corrugated Joint Fasteners**

Make Strong 2-Piece End Boxes.

Acme Patented Divergent Saw Edge Fasteners will not pull out and holds better than cleats or glue.

ACME STEEL BOX STRAPPING



Write nearest office for samples and prices.

ACME Strapping protects goods from damage and pilferage.

Specify ACME CORRUGATED JOINT FASTENERS.

ACME STEEL GOODS CO., Mfrs.

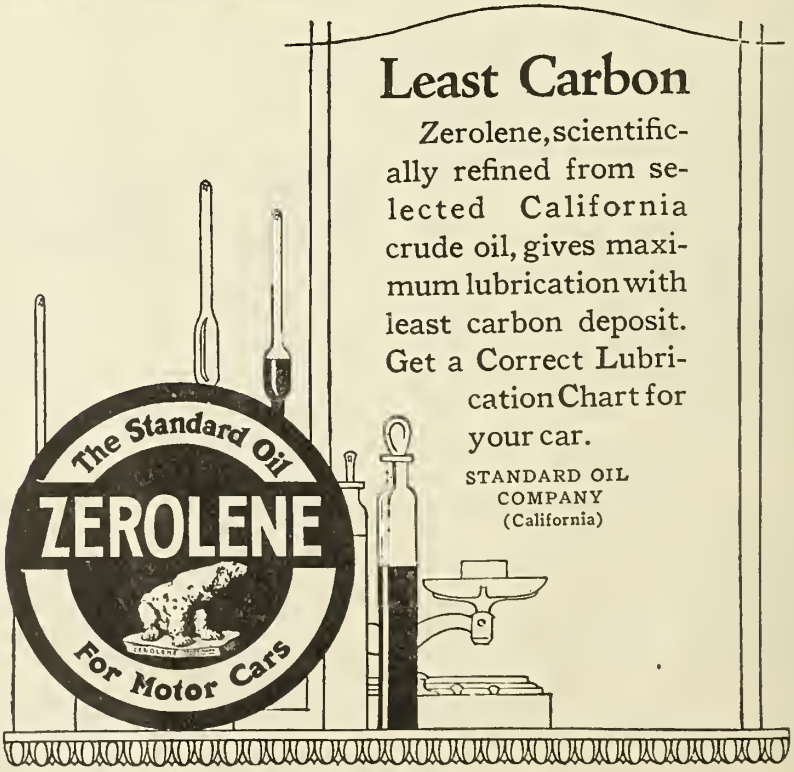
Works: 2840 Archer Avenue, CHICAGO

Branch and Warehouse: 209 California Street, San Francisco, Cal.
Branch and Warehouse: Foot of Main Street, Seattle, Wash.
Warehouse Only: Holman Transfer Co., Portland, Ore.

Least Carbon

Zerolene, scientifically refined from selected California crude oil, gives maximum lubrication with least carbon deposit. Get a Correct Lubrication Chart for your car.

STANDARD OIL COMPANY (California)



organization where he could voice his sentiments and make them felt; as to transportation—that he would want to have a hand in, or a *fist* in, this business. Then Robinson referred to the membership he holds in the Transportation Committee of the American Fruit and Vegetable Shippers' Association, which national organization controls 400,000 carloads of perishables shipped annually to the markets of the United States and the world.

Now, thought I, if there were no Skookum organizations, something of this kind, no expert men like Robinson paid by such organizations, how in the world could there be a national organization like the American? And when there is anything to be done, when the fruit grower wants something done, when he wants protection, who is going to hear his individual yeep? No! It is not the yeep of Mr. Solitary Fruit Grower standing alone with his pet theories and prejudices by the fence corner that the Federal authorities listen to, but it is the roar of the thousands of unified yeeps in organizations like Skookum, which in turn pass it on to organizations like the American, representing 400,000 carloads. They listen to it!

That's what I mean by how we "lean on each other."

Protection, did I say? Listen to what Robinson has on that. The American arranged that the railroads put in false floors at the railroads' expense. Number one. Where did Barnes, in charge of railroad refrigerator car distribution, get his stimulus and information by which such unparalleled car service was given us last year. From the little fellow yeeping by the fence corner or from men like Robinson? Answer it yourself. Score number two. The railroads last year ordered that the charge for diversions be increased and reduced the number of diversions. Who looked after this injustice? Mr. Solitary Fruit Grower? Not much. Then that rate increase of 25 per cent last year: Robinson had some statistics on that. Did you know, Mr. Solitary, that there was actually saved $766,342.89 to the fruit growers of the Northwest by this expert, organized, Skookum type of protest? It means 7½ cents a box on the carage in the territory involved. If the increase had gone into effect, the full 25 per cent, the loss would have been $1,309,840 on apples alone, and two to four million dollars if soft fruit is considered. This latter loss, by the way, now faces the Northwest grower beginning May 31 next, a 25 per cent increase, unless organized effort is made against it. How can organized effort be made hanging over the split-rail fence in the corner with no-organization-for-me theories. The orange industry down south is affected also—needless to say they are going to fight it—but with men who belong to the wedge formation of the old football days, men who have been at the feet of conventions like these Skookum conventions, and have learned; men who lean on each other—a hand on each other's shoulder.

Robinson told how new Refrigerator Tariff No. 1, very injurious to the apple industry, was postponed by organized protest. He claims that improvements of vast importance have been made. Tampering of the bill of lading which would have meant important interference with the apple industry was forestalled. And so on. Robinson wound up with a plea that every man there go home and tell his neighbor to join the Fruit Growers' Agency and then be sure that he does it himself. So there you are—Skookum boosting for any sound organization. Not only men, but organizations themselves "lean on each other."

Then there came the last word in organization necessity. It was a forceful talk—by the advertising manager of Skookum. Leather said things and said them in such a way that they leaned forward and ate it up. Leather had a fine display of advertising, a regular exhibition, occupying a good space along the side of the hall. On the platform he had four or five charts. It was a clean, big display of a convincing sort on Skookum advertising. Leather happens to be one of the Northwest's earliest writers on apples. He was commercial editor of the Seattle Times in 1892, the second man in the metropolis to write

Packers and Canners Are You Aware?

Make This Season a REX SEASON

THOUSANDS ARE ADOPTING

REX DRY PASTE

AND COLD WATER

Smooth as silk — Will not stain or sour — Wonderful sticking qualities
Will not separate water — No acid to rust can

Don't take our word—write today for sample.

PATENT CEREALS COMPANY
325 Thirteenth Street, Oakland, California

"Some Saving!" says the Good Judge

You men are saving every cent you can. You ought to know that this *quality* tobacco costs *less* to chew—not more!

You take a smaller chew. It gives you the good tobacco taste. It lasts and lasts. You don't need a fresh chew so often.

THE REAL TOBACCO CHEW

put up in two styles

RIGHT CUT is a short-cut tobacco
W-B CUT is a long fine-cut tobacco

on business, and he has been writing on it ever since. He was for years editor of the Trade Register. Now he is putting his enthusiasm into apple organization altogether. He read a letter from Don Francisco of "Sunkist" advertising fame, which told what oranges had to do and did do. He read another from the "Sunmaid" raisin advertising manager, Thomas, and Leather explained how the bakers had been induced by advertising coöperation to take hold of raisins, make the raisin novelty buns and bread, put new life into their industry, money into their pockets and salvation into the grape vines of California. He also read a letter from Chaney of the American Cranberry Exchange, which told how intensive advertising had cleaned out the 1918 crop in record time at the highest prices ever obtained, notwithstanding the restricted sugar situation, which had threatned to quecr the market in 1918 completely. Leather showed that advertising compels coöperation. He showed and proved that the Skookum system compels coöperation of wholesaler and retailer, and develops a sales organization that works to the keynote and time of advertising like an orchestra to its conductor.

Pacific Coast Agents
United States Steel Products Co.
San Francisco
Los Angeles
Portland
Seattle

PEARSON COATED NAILS

J.C. Pearson Co., Inc.
Sole Manufacturers
63 Pearl Street
Boston, Mass.

PEARSON NAILS

ECONOMY in buying is getting the best value for the money, not always in getting the lowest prices. PEARSON prices are right.

ADHESIVENESS or holding power is the reason for PEARSON nails. For twenty years they have been making boxes strong. Now, more than ever.

RELIABILITY behind the goods is added value. You can rely on our record of fulfillment of every contract and fair adjustment of every claim.

SATISFACTION is assured by our long experience in making nails to suit our customers' needs. We know what you want; we guarantee satisfaction.

ORIGINALITY plus experience always excels imitation. Imitation's highest hope is, to sometime (not now) equal Pearson—meantime *you* play safe.

N A I L S

PRINTING

FOR FRUIT GROWERS, CANNERS, MANUFACTURERS AND MERCHANTS

CATALOGS STATIONERY
BOOKLETS BLANK BOOKS
POSTERS LABELS
ADVERTISING MATTER

WRITE FOR PRICES AND SPECIFICATIONS - OUT OF TOWN ORDERS EXECUTED PROMPTLY, ACCURATELY AND ECONOMICALLY
WE PRINT BETTER FRUIT

F.W. BALTES & COMPANY
PORTLAND, OREGON

An Historic Apple Tree

Perhaps the most historic apple tree in Oregon is one that is located in the Hood River Valley and was brought across the plains in the late fifties by Davis Divers. The tree, which is now on the place of George T. Prather at Hood River, was brought from Missouri by Mr. Divers and was first planted near Oregon City. In 1861, when Mr. Divers moved to Hood River he dug the tree up and transplanted it. The tree was planted near the house and a number of years ago when the house was burned many of the branches were badly injured by the flames. Later, however, new limbs grew out and the tree today, which is now nearly 70 years old and is of the Rhode Island Greening variety, is still in excellent condition. Last year forty-two packed boxes of apples were picked from it.

Building $75,000 Cold-Storage Plant.

C. W. Grant, manager for the Richey & Gilbert Company, one of the largest and most successful fruit-handling firms in the Yakima Valley district, who was in Portland recently announced to BETTER FRUIT that, after doing business for twenty-five years at Toppenish, the headquarters of the company would be moved next August to Yakima. The company is now building a cold-storage warehouse and packing house at the latter place at an expense of $75,000. The new plant will contain all that is modern in the way of cold storage and packing-house equipment, and when completed will have a capacity of 200 cars. Mr. Grant stated that while the frost did some damage to Winesap apples and prunes in the Yakima Valley he looks for big crops of all kinds of fruit from that section, and a successful year for fruitmen generally.

Loomis Company Adds Large Plant.

Anticipating a much larger fruit-handling business this season, E. P. Loomis & Co., one of the largest New York apple-handling firms, have invested $100,000 in an eight-story brick building adjoining their big cold-storage plant, and will use it as an apple warehouse as soon as the necessary alterations are made. The Loomis Company is well known throughout the Northwest, having handled large quantities of fruit from Oregon and Washington for several years. R. P. Loomis, the junior member of the firm, is part owner of the Lava Bed Orchards, one of the largest and best equipped orchard properties in the Hood River Valley.

Field Testing Copper-Spray, Etc.

Continued from page 9.

be determined only from investigations covering a period of years. The best spray practice should aim at keeping the spray coating always above the maximum limit, and ordinarily good practice should never take the risk of falling below the minimum limit.

Field Trials

During the two seasons that this method has been in use, something like 75 schedules have been tested by the writers. The following results are selected as being representative.

Apple Leaves at Crozet, Virginia

Winesap apple leaves were tested at Crozet, Virginia, June 23 to July 22, 1917. The orchard was about five acres in extent and was sprayed with 3-4-50 Bordeaux mixture on the date of the first collection. Each sample was divided, one portion being sent to the Bureau of Chemistry, United States Department of Agriculture, for exact analysis, and the other tested by the field method outlined above. The analytical data is based on the dry weight of the samples, and the field tests data have been converted to the same basis by assuming a constant value of 35 per cent for the dry weight of the leaves. A scale for equivalent readings in milligrams of copper per 100 grams fresh weight of leaves is also indicated in the figure.

At this early period in the work the samples were too small to give the best results for so large a planting. However, there is reasonably close agreement between the graphs secured by the two methods, with the exception of a few of the first determinations.

Tests were made during July and August, 1917, in two apple orchards, A and B, at Crozet, Virginia, sprayed by the owners with 3-4-50 Bordeaux mixture according to their usual practices. Both orchards had received a first application of the mixture about the middle of June. The readings indicate the milligrams of copper per 100 grams fresh weight of leaves. Two other orchards, C and D, in the same locality, bore light crops of fruit and for this reason were given rather light spraying of 3-4-50 Bordeaux mixture by their owners.

Tests before and after the second and third spray applications in these orchards gave the results shown in Table I.

Bearing Grapefruit Trees at Winter Park, Florida

Two spray applications on a commercial basis were made on plats of bearing grapefruit trees at Winter Park, Florida, the first on March 9 and the second on April 16, 1918, using a power sprayer developing approximately 225 pounds pressure. The plats contained 30 trees each. Single samples of 200 grams fresh weight were taken from each plat at intervals of about four days until June 1. In this test 3-4-50 Bordeaux mixture was used with and without a certain oil emulsion, and the Burgundy mixture was also made up with 3 pounds of bluestone. The tests show consistent decreases in copper content of the coatings.

Citrus Nursery Stock at Bradentown, Florida

At Bradentown, Florida, comparative tests were made with three strengths of Bordeaux mixture, made up according to 3-4-50, 2-2⅔-50, and 1-1⅓-50 formulas. The applications were made in February and March, 1918, on two nursery plantings of overgrown sour-orange stock. In Nursery I the trees were about 6 feet high; in Nursery II about 3 feet. A bucket spray pump was used, and in each nursery measured amounts of spray were applied to equal lengths of the nursery rows to secure a distribution of the spray as equal as possible. The fresh weight of each leaf sample approximated 100 grams.

In every case the grower claimed that 6 pounds of bluestone were used in 50 gallons of the Bordeaux mixture. Knapsack sprayers were used. With the exception of field D one or more applications had been made before testing began. When samples could not be taken immediately before and after a spray application, estimates have been made from the previous or subsequent direction of the graph to determine the probable values.

The owner of field A, besides guessing at the quantities of ingredients, followed a faulty method of mixing the spray. In spite of frequent applications, the results were very unsatisfactory. If it is assumed that adequate protection from some specific celery disease is secured by spray residues testing between 35 as a minimum and 45 as a maximum for a transition zone, it will

-easy!

How it helps to take the fuss out of breakfast —Ghirardelli's Ground Chocolate! And how it helps to start the day off just right!

Easy to make—just a minute or two; and then —you have this delicious, sustaining food-beverage, piping hot and ready to serve!

Not sold in bulk but *in cans only*. Look for the Ghirardelli label when you buy. In ½ lb., 1 lb. and 3 lb. cans—wherever you do your trading. Look for the Ghirardelli label!

Say "Gear-ar-delly"

Since 1852 D. GHIRARDELLI CO San Francisco

Ghirardelli's Ground Chocolate

be seen that this field was really protected for only 3 out of 38 days by six applications.

Field B, with two applications, dropped below the theoretical transition zone 10 days after the second application and stood with insufficient protection during the remaining fifteen days of the test period.

Field C, with four applications, was insufficiently protected during a total of five days, but this could have been prevented by slight shortening of the intervals between applications.

Field D was late celery sprayed first on March 1. On the basis of the limits assumed for the critical zone, the second application should have followed the first in ten days, and the interval between the third and fourth might have been considerably prolonged provided large growth development had not occurred.

Directions for Use

As a guide in the practical use of this method, a condensed statement of the successive steps may be outlined, as follows:

Dissolve 3.928 grams of pure crystals of copper sulphate in distilled water and make up to 1,000 c. c.

Prepare in well-stoppered bottles stock dilutions of the above solution containing one-half c. c., 1 c. c., 1½ c. c., 2 c. c., and so on up to 10 c. c. in 100 c. c. of distilled water. These dilutions would then contain from one-half to 10 milligrams of copper per 100 c. c.

Prepare a weak solution of potassium ferrocyanide, about 2 grams in 100 c. c. of distilled water.

All of the above may be prepared in advance, by a pharmacist if desirable, and kept for a season's use.

Collect at least three representative samples of sprayed leaves, each of 200 grams fresh weight.

Wash each sample separately in 1,000 c. c. of pure water to which has been added 2 c. c. of chemically pure nitric acid, being careful to use glass or chinaware vessels and stirring occasionally for at least three minutes.

Pour into test tubes or vials of uniform size about 5 c. c. portions of the graded stock solutions of copper sulphate, and add to each a few drops of the potassium - ferrocyanide solution, sufficient to develop the maximum color reaction.

Treat similarly 5 c. c. portions of the washings from the leaf samples. Compare the color developed in these with the graded series. Take for a reading the number expressing milligrams of copper per 100 c. c. in the stock dilution that matches closest in color intensity. Simply multiplying this reading by 5 will then give a value in milligrams of copper per 100 grams fresh weight of leaf sample, a convenient unit for finally expressing the amount of copper in the spray coating. The results from the several samples may be compared and averaged.

Conclusion

This field method of following the persistence of copper-containing sprays promises to be of service to pathological investigators, agricultural experts and commercial growers along these lines: (1) To secure data showing the persistence of copper-containing sprays as it may be influenced by method of preparation, weathering, or other factors; (2) to determine the minimum and maximum limits of working safety zones, as measured by evenly distributed residues, effective for the practical control of specific diseases; (3) to secure prompt correction of faulty spraying practices, either in the preparation of mixtures or in the times or modes of application, with a view to insuring more effective and economical protection of crops; and (4) to serve as a practical guide in timing new applications, especially after rainy periods.

Wenatchee Buys Many Orchard Ladders

A single order for 5,750 feet of orchard ladders has been placed by the Wenatchee Produce Company, who are distributors in Chelan and Okanogan Counties of the Security ladder, said to be the one ladder made on the Coast which Florida citrus growers send across the continent for.

Ridley, Houlding & Co.
COVENT GARDEN, LONDON
WE ARE
Specialists in Apples and Pears
CABLE ADDRESS: BOTANIZING, LONDON
Codes: A. B. C. 5th Edition and Modern Economy

Dependable
"Red Crown" is straight-distilled, all-refinery gasoline. Look for the Red Crown sign before you fill.
STANDARD OIL COMPANY (California)
RED CROWN GASOLINE
The Gasoline of Quality

Like a Fairy Wand

STANDARD GRAVITY CONVEYOR EQUIPMENT is the transformer that turns dead weight into motive energy; provides the flexible indoor transportation system that takes the MAN-ual out of fruit packing, storing and shipping.

Standard Conveyors are constructed on the unit plan, thoroly standardized, both as to construction and utility.

Gravity, under the control and guidance of Standard Conveyors, will revolutionize your former packing methods, cut labor costs in half, speed up production, increase capacity, and in innumerable ways add to the pleasure and profit of doing business.

WHEREVER—WHATEVER your handling problems are, there is a Standard Service within immediate reach.

Get in immediate communication with our representative in your district and have him place at your disposal an efficiency conveying engineer to plan with you a Standard System to meet your specific needs.

Send for booklet: "Gravity for the Canner and Packer."

STANDARD CONVEYOR CO.

THE HOME OF *Gravity*

Formerly
MINNESOTA MANUFACTURERS' ASSOCIATION
North St. Paul, Minn.

BRANCH OFFICES

CHICAGO, ILL.	549 W. Washington St.
CINCINNATI, O.	141 E. Fourth St.
CLEVELAND, O.	1014 Citizens Bldg.
DETROIT, MICH.	400 Penobscot Bldg.
MILWAUKEE, WIS.	606 Security Bldg.
ST. LOUIS, MO.	507 Chemical Bldg.

BRANCH OFFICES

NEW YORK CITY	39-41 Cortlandt St.
WASHINGTON, D. C.	Ouray Bldg.
PITTSBURG, PA.	829 Oliver Bldg.
SAN FRANCISCO, CAL.	20 Davis St.
SEATTLE, WASH.	Lumber Exchange Bldg

Representatives in all principal cities.

THE WORLD-
OUR ORCHARD

STEINHARDT & KELLY

NEW YORK

UNQUESTIONABLY THE
MOST IMPORTANT FACTOR
IN THE DISTRIBUTION OF
THE COUNTRY'S FANCY

APPLES

AND OTHER FRUITS

OUR MARKET-
THE WORLD